ioLogik E1200 Series User's Manual

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ioLogik E1200 Series User's Manual

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1

Introduction

The ioLogik E1200 industrial Ethernet remote I/O has two embedded Ethernet switch ports that allow information to flow to another local Ethernet device or connect to the next ioLogik in the daisy-chain. Applications such as factory automation, security and surveillance systems, and tunnel monitoring, can make use of daisy-chained Ethernet for building multi-drop I/O networks over standard Ethernet cables and familiar fieldbus protocols. The daisy-chain function on the ioLogik E1200 Ethernet remote I/O not only increases the connections between machines and panels, but also lowers the cost of buying separate Ethernet switches, and at the same time reduces labor fees and cabling by a large percentage. For example, if a production facility contains 700 stations (20 points per station), the wiring cost reduction can reach 15% of the total implementation cost.

The following topics are covered in this chapter:

- **Product Features**
- **Inside the Box**
- **Product Model Information**
- **Product Specifications**
  - Common Specifications
  - ioLogik E1210
  - ioLogik E1211
  - ioLogik E1212
  - ioLogik E1213
  - ioLogik E1214
  - ioLogik E1240
  - ioLogik E1241
  - ioLogik E1242
  - ioLogik E1260
  - ioLogik E1262
- **Physical Dimensions**
- **Hardware Reference**
  - Panel Guide
  - Ethernet Port
  - LED Indicators
- **I/O Circuit Diagram**
  - DI Circuit
  - Sinking DO Circuit
  - Sourcing DO Circuit
  - DIO Circuit
  - Relay Circuit
  - AI Circuit
  - RTD Circuit
  - TC Circuit

Product Features

- Active communication with patented Active OPC Server
- 2-port Ethernet switch for daisy-chain topologies
- Easy mass deployment and configuration with ioSearch™utility
- User-friendly configuration via web browser
- Save time and wiring costs with peer-to-peer communication
- User-defined Modbus/TCP addressing
- Simplify I/O management with MXIO library on either Windows or Linux platform
- Wide operating temperature: -40 to 75°C (-40 to 167°F)
- Supports SNMPv1/v2c
- UL/cUL Class I Division 2, ATEX Zone 2 certification

Inside the Box

The ioLogik E1200 is shipped with the following items:

- ioLogik E1200 remote Ethernet I/O server
- Document and software CD
- Quick installation guide

NOTE Notify your sales representative if any of the above items are missing or damaged.

Product Model Information

Model	Description
ioLogik E1210	Remote Ethernet I/O with 2-port Ethernet switch and 16 DIs
ioLogik E1211	Remote Ethernet I/O with 2-port Ethernet switch and 16 DOs
ioLogik E1212	Remote Ethernet I/O with 2-port Ethernet switch, 8 DIs, and 8 DIOs
ioLogik E1213	Remote Ethernet I/O with 2-port Ethernet switch, 8 DIs, 4 DOs, and 8 DIOs (source type)
ioLogik E1214	Remote Ethernet I/O with 2-port Ethernet switch, 6 DIs, and 6 relays
ioLogik E1240	Remote Ethernet I/O with 2-port Ethernet switch and 8 AIs
ioLogik E1241	Remote Ethernet I/O with 2-port Ethernet switch and 4 AOs
ioLogik E1242	Remote Ethernet I/O with 2-port Ethernet switch and 4 AIs, 4DIs, and 4DIOs
ioLogik E1260	Remote Ethernet I/O with 2-port Ethernet switch and 6 RTDs
ioLogik E1262	Remote Ethernet I/O with 2-port Ethernet switch and 8 TCs
ioLogik E1210-T	Ethernet remote I/O with 2-port Ethernet switch and 16 DIs, -40 to 75°C operating temperature
ioLogik E1211-T	Ethernet remote I/O with 2-port Ethernet switch and 16 DOs, -40 to 75°C operating temperature
ioLogik E1212-T	Ethernet remote I/O with 2-port Ethernet switch, 8 DIs, and 8 DIOs, -40 to 75°C operating temperature
ioLogik E1213-T	Remote Ethernet I/O with 2 Port Ethernet switch, 8 DIs, 4 DOs, and 8 DIOs (source type), -40 to 75°C operating temperature
ioLogik E1214-T	Ethernet remote I/O with 2-port Ethernet switch, 6 DIs, and 6 Relays, -40 to 75°C operating temperature
ioLogik E1240-T	Ethernet remote I/O with 2-port Ethernet switch and 8 AIs, -40 to 75°C operating temperature
ioLogik E1241-T	Ethernet remote I/O with 2-port Ethernet switch and 4 AOs , -40 to 75°C operating temperature
ioLogik E1242-T	Ethernet remote I/O with 2-port Ethernet switch, 4 AIs, 4 DIs, and 4 DIOs, -40 to 75°C operating temperature
ioLogik E1260-T	Ethernet remote I/O with 2-port Ethernet switch and 6 RTDs, -40 to 75°C operating temperature
ioLogik E1262-T	Ethernet remote I/O with 2-port Ethernet switch and 8 TCs, -40 to 75°C operating temperature

Product Specifications

Common Specifications

LAN

Ethernet: 2 x 10/100 Mbps switch ports, RJ45
Protection: 1.5 kV magnetic isolation
Protocols: Modbus/TCP, TCP/IP, UDP, DHCP, BOOTP, HTTP

Power Requirements

Power Input: 24 VDC nominal, 12 to 36 VDC

Physical Characteristics

Wiring: I/O cable max. 14 AWG
Dimensions: 27.8 x 124 x 84 mm (1.09 x 4.88 x 3.31 in)
Weight: under 200 g
Mounting: DIN rail or wall

Environmental Limits

Operating Temperature:
Standard Models: -10 to 60°C (14 to 140°F)
Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 5 to 95% (non-condensing)
Altitude: Up to 2000 m
Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.

Standards and Certifications

Safety: UL 508
EMI:
EN 55022; EN 61000-3-2; EN 61000-3-3;
FCC Part 15, Subpart B, Class A
EMS:
EN 55024, EN 61000-4-2, EN 61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN 61000-4-6,
EN 61000-4-8, EN 61000-4-11
Shock: IEC 60068-2-27
Freefall: IEC 60068-2-32
Vibration: IEC 60068-2-6
Green Product: RoHS, CRoHS, WEEE
Hazardous Location: UL/cUL Class I Division 2, ATEX Zone 2 (ioLogik E1214 pending)
Note: Please check Moxa's website for the most up-to-date certification status.

Warranty

Warranty Period: 5 years (excluding ioLogik E1214)
Details: See www.moxa.com/warranty
Note: Because of the limited lifetime of power relays, products that use this component are covered by a 2-year warranty.

ioLogik E1210

Inputs and Outputs

Digital Inputs: 16 channels

Isolation: 3K VDC or 2K Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

I/O Mode: DI or Event Counter

Dry Contact:

• On: short to GND

• Off: open

Wet Contact:

NPN (DI to GND):

• On: 0 to 3 VDC

• Off: 10 to 30 VDC

PNP (DI to GND):

• Off: 0 to 3 VDC

• On: 10 to 30 VDC

Common Type: 8 points per COM

Counter Frequency: 250 Hz, power off storage

Digital Filtering Time Interval: Software selectable

Power Requirements

Power Consumption: 110 mA @ 24 VDC

MTBF (mean time between failures)

Time: 671,345 hrs

Database: Telcordia (Bellcore)

ioLogik E1211

Inputs and Outputs

Digital Outputs: 16 channels

Isolation: 3K VDC or 2K Vrms

Digital Output

Type: Sink

I/O Mode: DO or Pulse Output

Pulse Output Frequency: 500 Hz

Over-voltage Protection: 45 VDC

Over-current Protection: 2.6 A (4 channels @ 650 mA)

Over-temperature Shutdown: 175°C (typical), 150°C (min.)

Current Rating: 200 mA per channel

Power Requirements

Power Consumption: 208 mA @ 24 VDC

MTBF (mean time between failures)

Time: 923,027 hrs

Database: Telcordia (Bellcore)

ioLogik E1212

Inputs and Outputs

Digital Inputs: 8 channels

Configurable DIOs: 8 channels

Isolation: 3K VDC or 2K Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

I/O Mode: DI or Event Counter

Dry Contact:

- On: short to GND
- Off: open

Wet Contact:

NPN (DI to GND):

- On: 0 to 3 VDC
- Off: 10 to 30 VDC

PNP (DI to GND):

- Off: 0 to 3 VDC
- On: 10 to 30 VDC

Common Type: 8 points per COM

Counter Frequency: 250 Hz, power off storage

Digital Filtering Time Interval: Software selectable

Digital Output

Type: Sink

I/O Mode: DO or Pulse Output

Pulse Output Frequency: 500 Hz

Over-voltage Protection: 45 VDC

Over-current Protection: 2.6 A (4 channels @ 650 mA)

Over-temperature Shutdown: 175°C (typical), 150°C (min.)

Current Rating: 200 mA per channel

Power Requirements

Power Consumption: 155 mA @ 24 VDC

MTBF (mean time between failures)

Time: 561,930 hrs

Database: Telcordia (Bellcore)

ioLogik E1213

Inputs and Outputs

Digital Inputs: 8 channels

Digital Outputs: 4 channels

Digital Input/Output (configurable by jumper): 4 channels

Isolation: 3K VDC or 2K Vrms

Digital Input

Sensor Type: NPN, PNP, and dry contact

I/O Mode: DI or event counter

Dry Contact:

- Logic 0: short to GND
- Logic 1: open

Wet Contact:

- Logic 0: 0 to 3 VDC
- Logic 1: 10 to 30 VDC (DI COM to DI)

Common Type: 12 points per COM

Counter/Frequency: 250 Hz, power off storage

Digital Output

I/O Mode: DO or Pulse Output

I/O Type:

Source

Current: 500 mA per channel

Voltage: 15 to 30 VDC (12 or 9 VDC configurable by jumper on the 4 DO channels)

Pulse Wave Width/Frequency: 1 ms/500 Hz

Over-Voltage Protection: 45 VDC

Over-Current Limit: 1.5 A per channel @ 25°C

Over-Temperature Shutdown: 175°C (typical), 150°C (min.)

Output Current Rating: 0.5A per channel

Power Requirements

Power Input: 24 VDC nominal, 12 to 36 VDC

Power Consumption: 130 mA typical @ 24 VDC

ioLogik E1214

Inputs and Outputs

Digital Inputs: 6 channels

Relay Outputs: 6 channels

Isolation: 3K VDC or 2K Vrms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact

I/O Mode: DI or Event Counter

Dry Contact:

• On: short to GND

• Off: open

Wet Contact:

NPN (DI to GND):

- On: 0 to 3 VDC
- Off: 10 to 30 VDC

PNP (DI to GND):

- Off: 0 to 3 VDC
- On: 10 to 30 VDC

Common Type: 6 points per COM

Counter Frequency: 250 Hz, power off storage

Digital Filtering Time Interval: Software selectable

Relay Output

Type: Form A (N.O.) power relay

Contact Current Rating:

• Resistive Load: 5 A @ 30 VDC, 250 VAC, 110 VAC

Breakdown Voltage: 500 VAC

Relay On/Off Time: 1500 ms (max.)

Initial Insulation Resistance: 1000 M ohms (min.) @ 500 VDC

Mechanical Endurance: 5,000,000 operations

Electrical Endurance: 100,000 operations @ 5 A resistive load

Contact Resistance: 100 m ohms (max.)

Pulse Output: 0.3 Hz at rated load

Note: Ambient humidity must be non-condensing and remain between 5 and 95%. The relays of the ioLogik E1214 may malfunction when operating in high condensation environments below 0° Celsius.

Power Requirements

Power Consumption: 188 mA @ 24 VDC

MTBF (mean time between failures)

Time: 808,744 hrs

Database: Telcordia (Bellcore)

ioLogik E1240

Inputs and Outputs

Analog Inputs: 8 channels

Isolation: 3K VDC or 2K Vrms

Analog Input

Type: Differential input

Resolution: 16 bits

I/O Mode: Voltage / Current

Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -10 and 60°C

±0.5% FSR @ -40 and 75°C

Sampling Rate:

- All channels: 12 samples/sec
- Per channel: 1.5 samples/sec
- Only one channel enabled: 12 samples/sec

Input Impedance: 10M ohms (min.)

Built-in Resistor for Current Input: 120 ohms

Power Requirements

Power Consumption: 121 mA @ 24 VDC

MTBF (mean time between failures)

Time: 474,053 hrs

Database: Telcordia (Bellcore)

ioLogik E1241

Inputs and Outputs

Analog Outputs: 4 channels

Isolation: 3K VDC or 2K Vrms

Analog Output

Resolution: 12 bits

Output Range: 0 to 10 VDC, 4 to 20 mA

Voltage Output: 10 mA (max.)

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -40 and 75°C

Load Resistor:

- Internal resistor: 400 ohms

Note: 24 V of external power required when loading greater than 1000 ohms.

Power Requirements

Power Consumption: 194 mA @ 24 VDC

MTBF (mean time between failures)

Time: 888,656 hrs

Database: Telcordia (Bellcore)

ioLogik E1242

Inputs and Outputs

Analog Inputs: 4 channels
Digital Inputs: 4 channels
Configurable DIOs: 4 channels
Isolation: 3K VDC or 2K Vrms

Analog Input

Type: Differential input
Resolution: 16 bits
I/O Mode: Voltage / Current
Input Range: 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA
Accuracy:
±0.1% FSR @ 25°C
±0.3% FSR @ -10 and 60°C
±0.5% FSR @ -40 and 75°C
Sampling Rate:
• All channels: 12 samples/sec
• Per channel: 3 samples/sec
• Only one channel enabled: 12 samples/sec
Input Impedance: 10M ohms (min.)
Built-in Resistor for Current Input: 120 ohms

Digital Input

Sensor Type: Wet Contact (NPN or PNP), Dry Contact
I/O Mode: DI or Event Counter
Dry Contact:
• On: short to GND
• Off: open
Wet Contact:
NPN (DI to GND):
• On: 0 to 3 VDC
• Off: 10 to 30 VDC
PNP (DI to GND):
• Off: 0 to 3 VDC
• On: 10 to 30 VDC
Common Type: 4 points per COM
Counter Frequency: 250 Hz, power off storage
Digital Filtering Time Interval: Software selectable

Digital Output

Type: Sink
I/O Mode: DO or Pulse Output
Pulse Output Frequency: 500 Hz
Over-voltage Protection: 45 VDC
Over-current Protection: 2.6 A (4 channels @ 650 mA)
Over-temperature Shutdown: 175°C (typical), 150°C (min.)
Current Rating: 200 mA per channel

Power Requirements

Power Consumption: 139 mA @ 24 VDC

MTBF (mean time between failures)

Time: 502,210 hrs
Database: Telcordia (Bellcore)

ioLogik E1260

Inputs and Outputs

RTD Inputs: 6 channels

Isolation: 3K VDC or 2K Vrms

RTD Inputs

Input Type:

• PT50, PT100, PT200, PT500 (-200 to 850°C)

• PT1000 (-200 to 350°C)

• Resistance of 310, 620, 1250, and 2200 ohms

Sampling Rate:

• All channels: 12 samples/sec

• Per channel: 2 samples/sec

• Only one channel enabled: 12 samples/sec

Resolution: 0.1°C or 0.1 ohm

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -40 and 75°C

Input Impedance: 625K ohms

Power Requirements

Power Consumption: 110 mA @ 24 VDC

MTBF (mean time between failures)

Time: 660,260 hrs

Database: Telcordia (Bellcore)

ioLogik E1262

Inputs and Outputs

Thermocouple Inputs: 8 channels

Isolation: 3K VDC or 2K Vrms

Thermocouple Input

Sensor Type: J (0 to 750°C), K (-200 to 1250°C), T (-200 to 350°C), E (-200 to 900°C), R (-50 to 1600°C), S (-50 to 1760°C), B (600 to 1700°C), N (-200 to 1300°C)

Millivolt Type:

• Mode: ±78.126 mV, ±39.062 mV, ±19.532 mV

• Fault and over-voltage protection: -35 to +35 VDC (power off); -25 to +30 VDC (power on)

Sampling Rate:

• All channels: 12 samples/sec

• Per channel: 1.5 samples/sec

• Only one channel enabled: 12 samples/sec

Resolution: 16 bits

Accuracy:

±0.1% FSR @ 25°C

±0.3% FSR @ -40 and 75°C

Input Impedance: 10M ohms

Power Requirements

Power Consumption: 118 mA @ 24 VDC

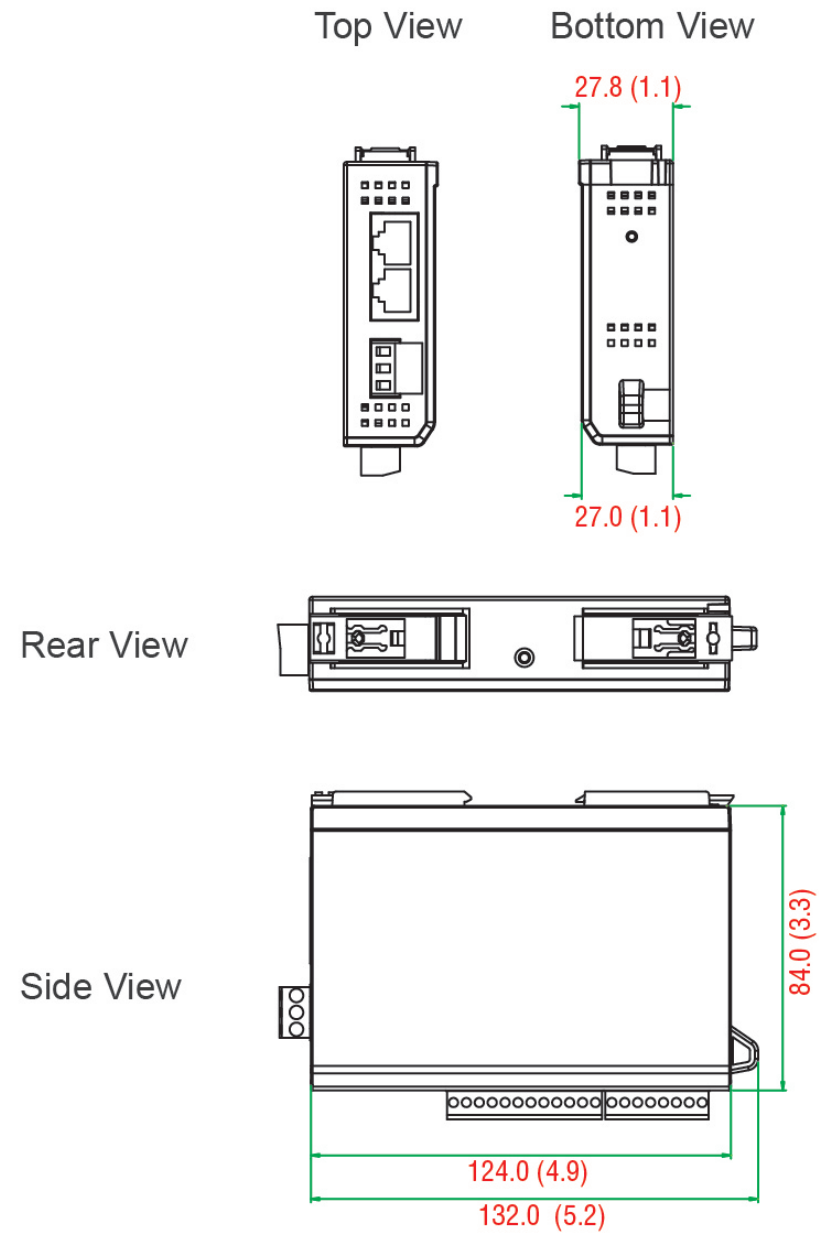
MTBF (mean time between failures)

Time: 631,418 hrs

Database: Telcordia (Bellcore)

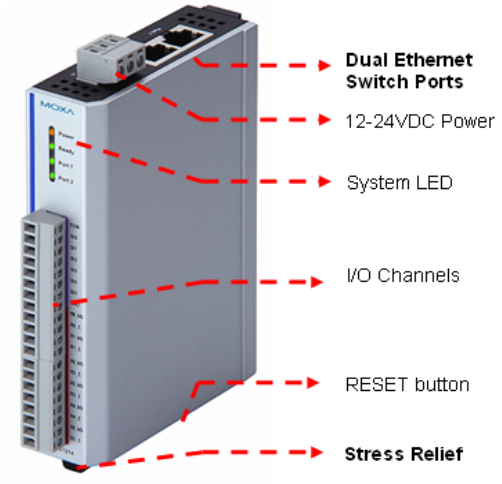
Physical Dimensions

Unit: mm (inch)



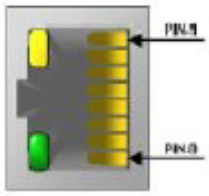
Hardware Reference

Panel Guide



NOTE The RESET button restarts the server and resets all settings to factory defaults. Use a pointed object such as a straightened paper clip to hold down the RESET button for 5 seconds. The factory defaults will be loaded once the READY LED turns green again. You may then release the RESET button.

Ethernet Port



Pin	1	2	3	4
Signal	TXD^+	TXD^-	RXD^+	X

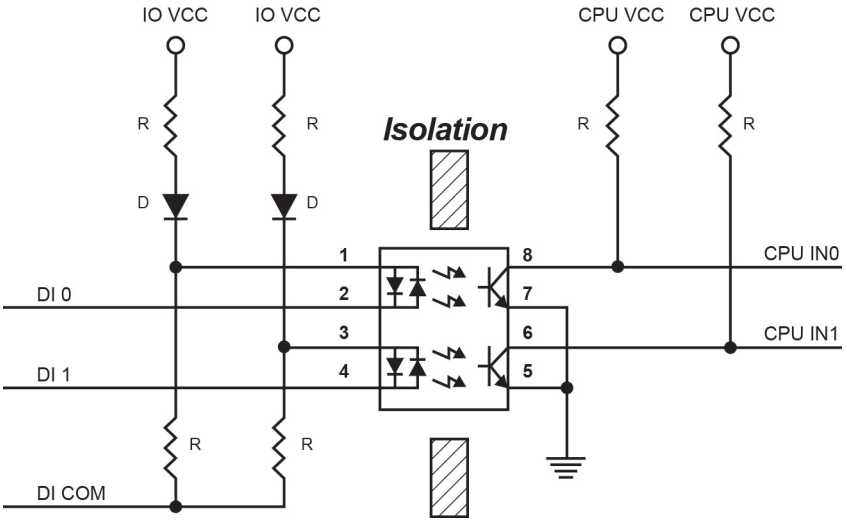
Pin	5	6	7	8
Signal	X	RXD^-	X	X

LED Indicators

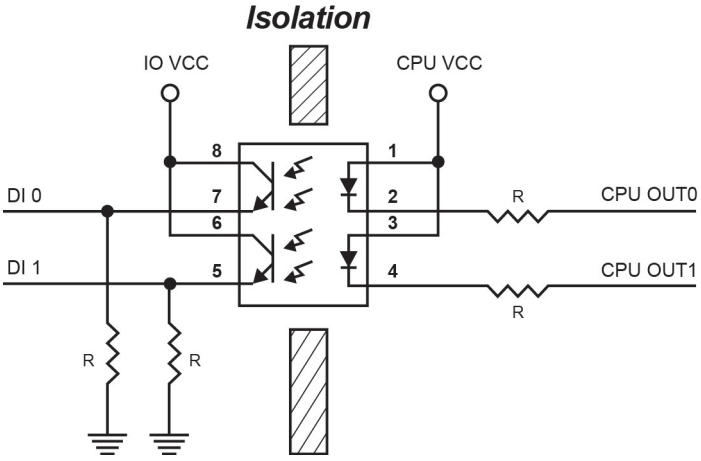
LED	State	Description
Power	Amber	System power is ON
	OFF	System power is OFF
Ready	Green	System is ready
	Flashing	Flashes every 1 second when the "Locate" function is triggered
	Flashing	Flashes every 0.5 second when the firmware is being upgraded
	Flashing	ON/OFF cycle period of 0.5 second represents "Safe Mode"
	OFF	System is not ready
Port 1	Green	Ethernet connection enabled
	Flashing	Transmitting or receiving data
Port 2	Green	Ethernet connection enabled
	Flashing	Transmitting or receiving data
EXT	Green	EXT field power input is connected
	Off	EXT field power input is disconnected

I/O Circuit Diagram

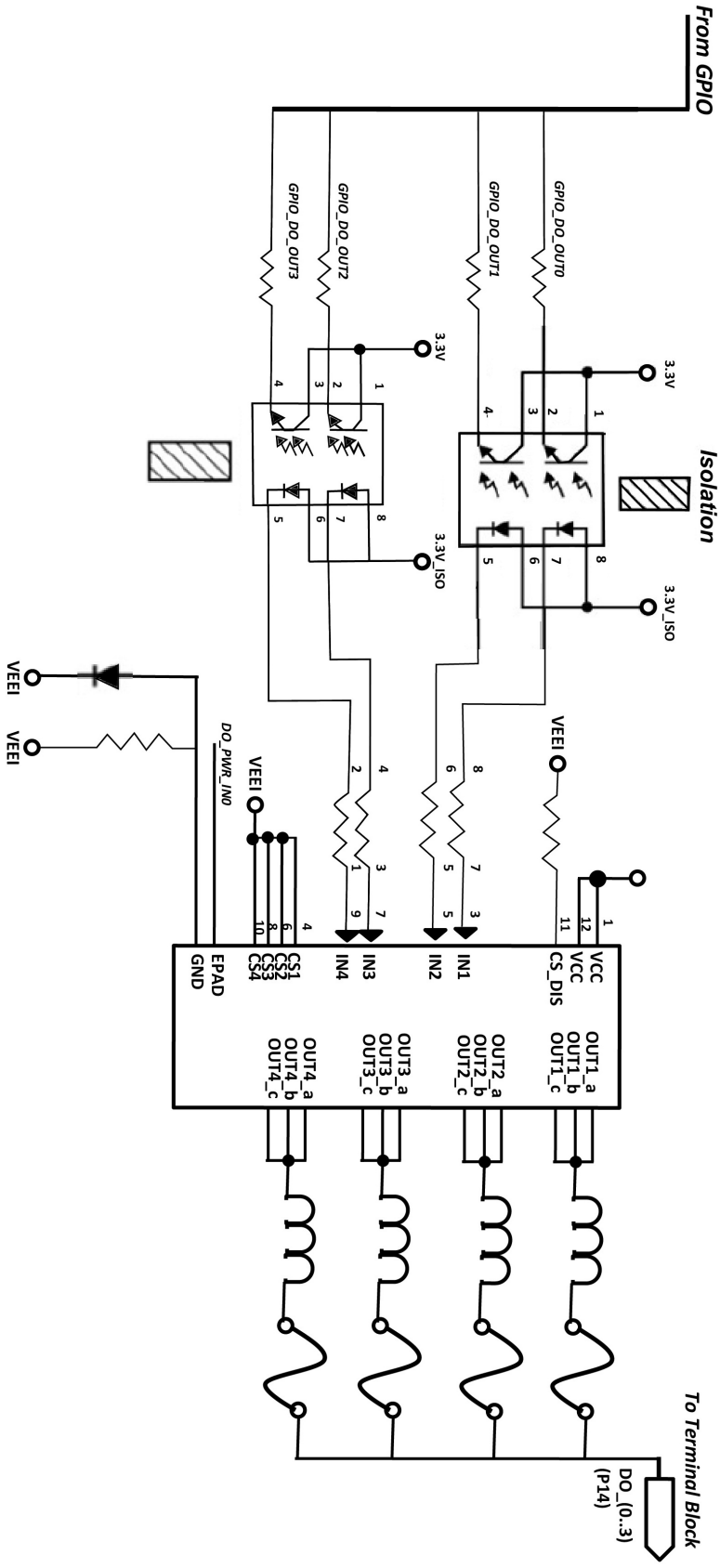
DI Circuit



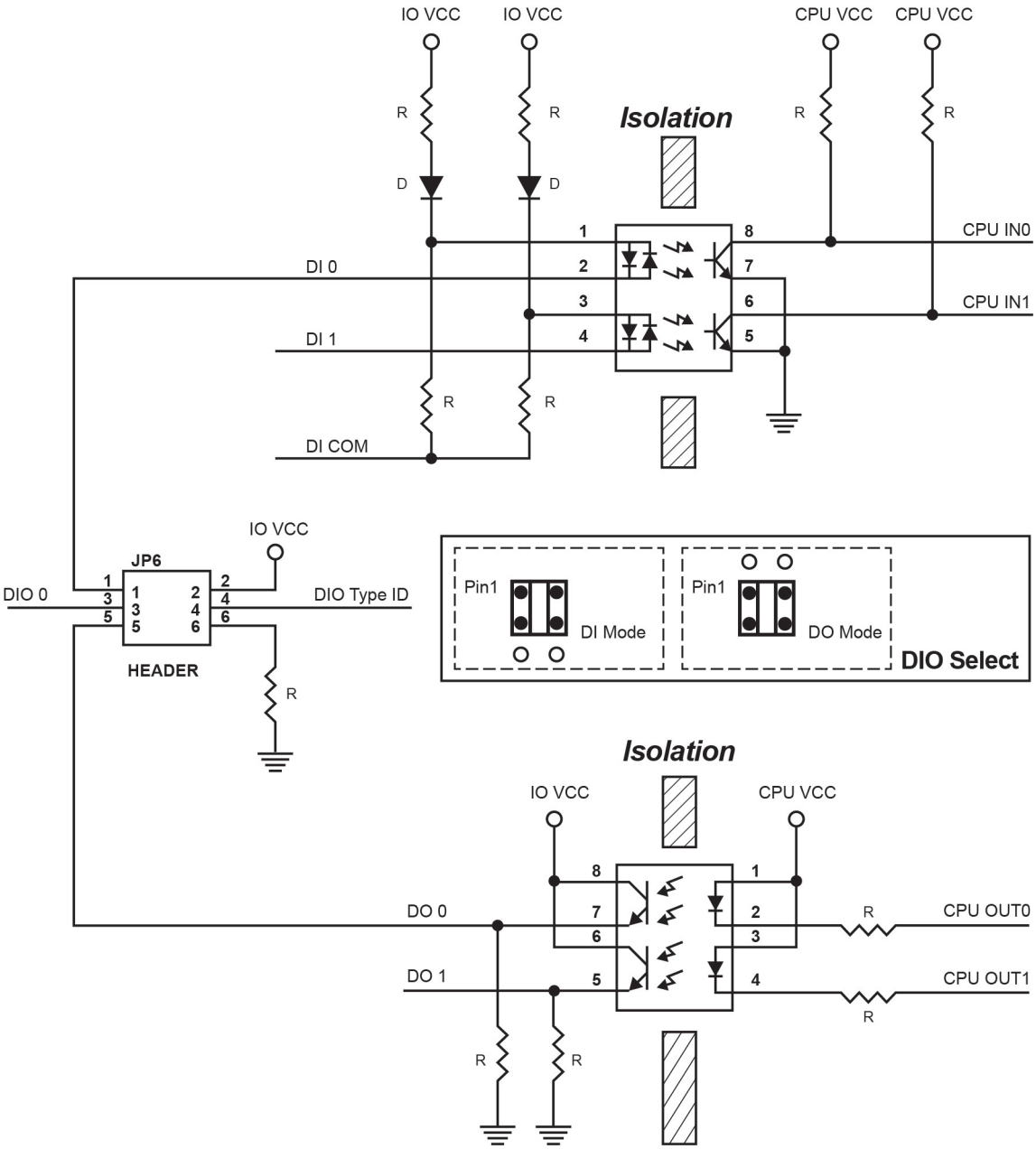
Sinking DO Circuit



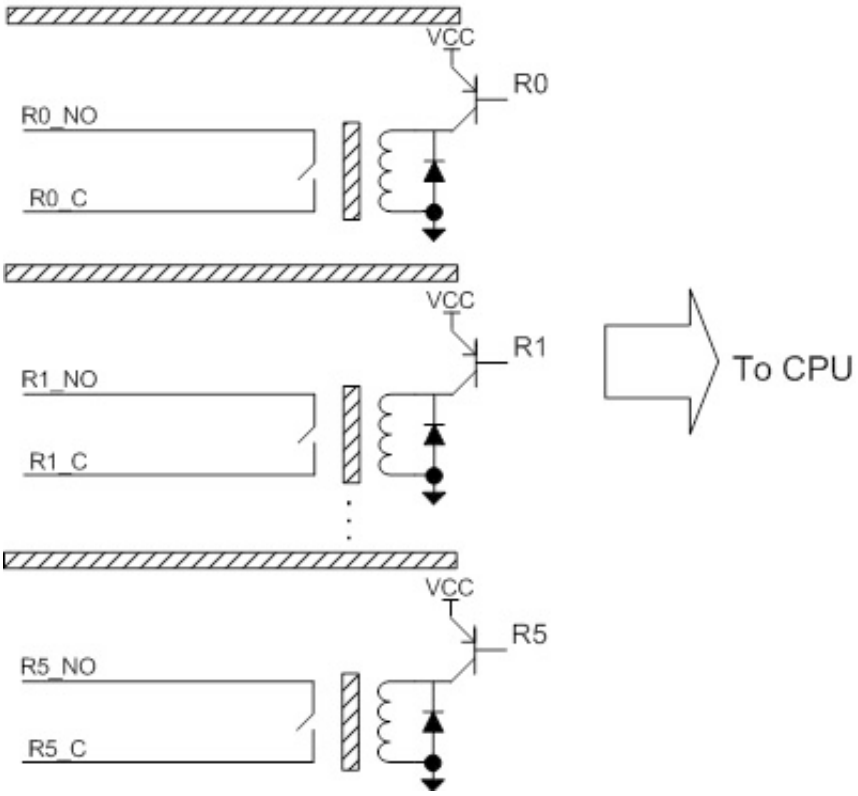
Sourcing DO Circuit



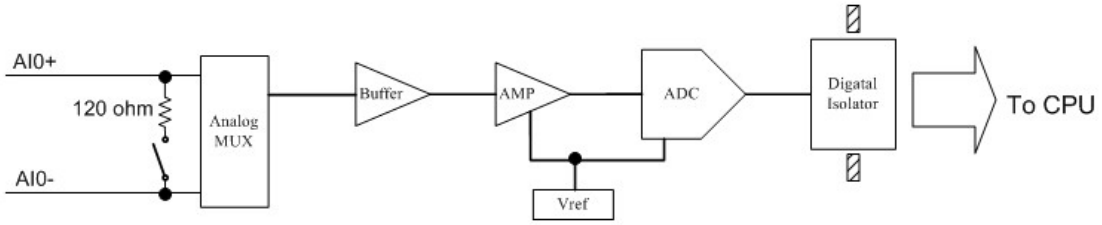
DIO Circuit


IO VCC
IO VCC
CPU VCC
CPU VCC
Isolation
R
D
DI 0
DI 1
DI COM
CPU IN0
CPU IN1
JP6
DIO 0
DIO Type ID
HEADER
Pin1
DI Mode
DO Mode
DIO Select
DO 0
DO 1
CPU OUT0
CPU OUT1

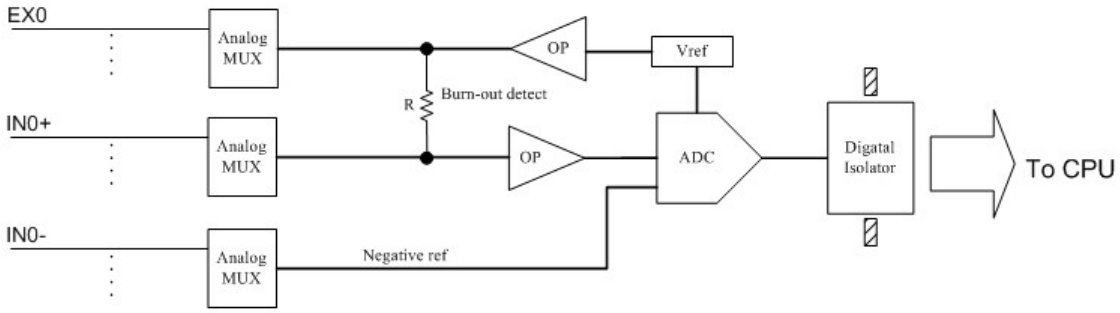
Relay Circuit



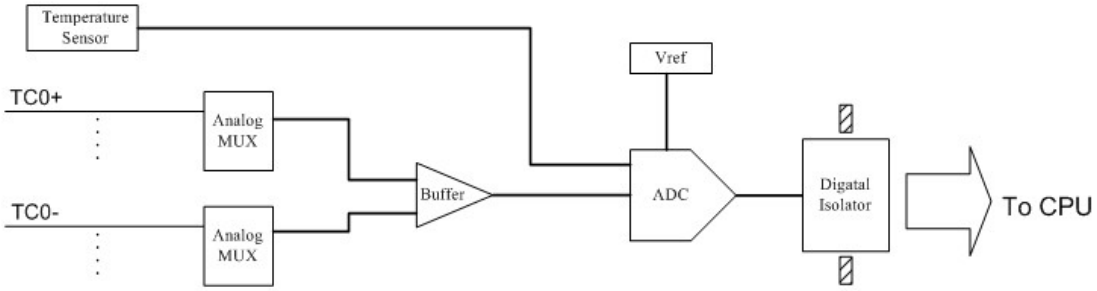
AI Circuit



RTD Circuit



TC Circuit



2

Initial Setup

This chapter describes how to install the ioLogik E1200.

The following topics are covered in this chapter:

- **Hardware Installation**
  - Connecting the Power
  - Grounding the ioLogik E1200
  - DIN Rail, Wall Mounting
  - Connecting to the Network
  - Jumper Settings (DIO and AI)
  - I/O Wiring Diagrams
- **ioSearch™ Installation**
- **Load Factory Default Settings**

Hardware Installation

Connecting the Power

Connect the 12 to 36 VDC power line to the ioLogik E1200's terminal block on the top panel. If power is properly supplied, the Power LED will glow a solid amber color.

ATTENTION

Determine the maximum possible current for each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size. If the current exceeds the maximum rating, the wiring may overheat, causing serious damage to your equipment. For safety reasons, we recommend an average cable size of 22 AWG. However, depending on the current load, you may want to adjust your cable size (the maximum wire size for power connectors is 2 mm).

Grounding the ioLogik E1200

The ioLogik E1200 is equipped with a grounding point on the terminal block located on the top panel.

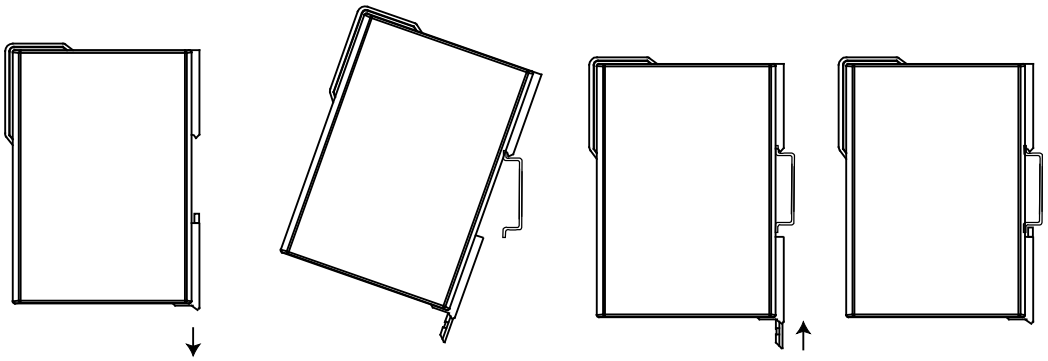
Connect the ground pin ( ) if earth ground is available.

DIN Rail, Wall Mounting

There are two sliders on the back of the unit for DIN rail and wall mounting.

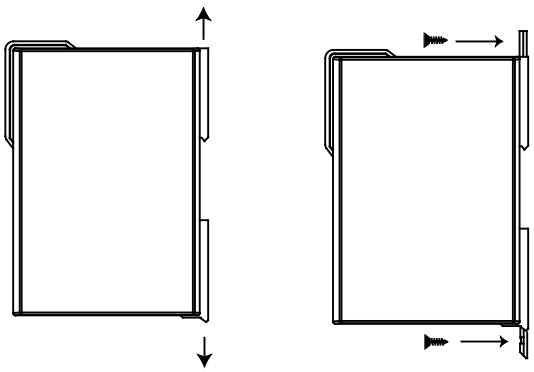
Mounting on a DIN rail:

Pull out the bottom slider, latch the unit onto the DIN rail, and push the slider back in.



Mounting on the wall:

Pull out both the top and bottom sliders and align the screws accordingly.



Connecting to the Network

The ioLogik E1200 has two built-in RJ45 Ethernet ports for connecting a standard direct or cross-over Ethernet cable to either the host PC or another ioLogik E1200 device. For initial setup of the ioLogik E1200, it is recommended that the ioLogik E1200 be configured using a direct connection to a host computer rather than remotely over the network.

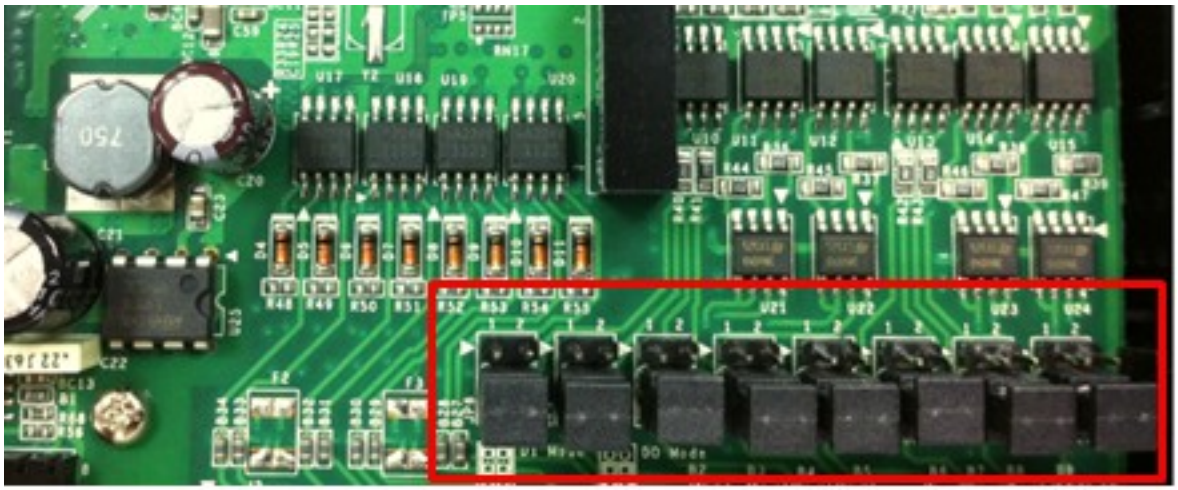
Configure the host PC's IP address to 192.168.127.xxx (where xxx ranges from 001 to 253). When using Windows, you will need to configure from the Control Panel.

ioLogik E1200 Default IP Address	Default Netmask	Default Gateway
192.168.127.254	255.255.255.0	None

Use the web console or ioSearch™ configuration utility to connect to the ioLogik E1200. Once the ioLogik E1200 has been detected, modify the settings as needed for your network environment, and then restart the server. Refer to Chapters 3 and 4 for further details.

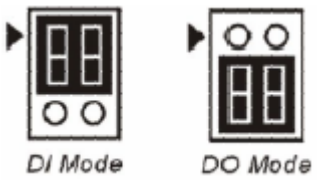
Jumper Settings (DIO and AI)

The ioLogik E1212, E1240, and E1242 models require configuration for the jumpers located inside the cover. Remove the screw on the back panel and open the cover to configure the jumpers.



DIO Mode Configuration Settings

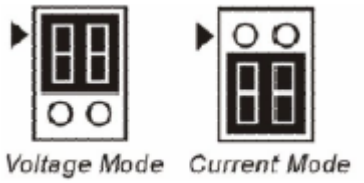
DIO mode configuration settings are shown below:



The default setting is DO Mode.

AI Mode Configuration Settings

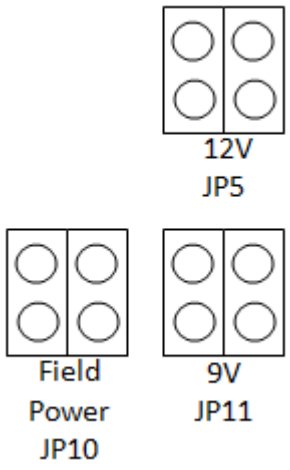
Analog mode configuration settings are shown below:



The default setting is Voltage Mode.

EXT Power Configuration Settings (ioLogik E1213 Only)

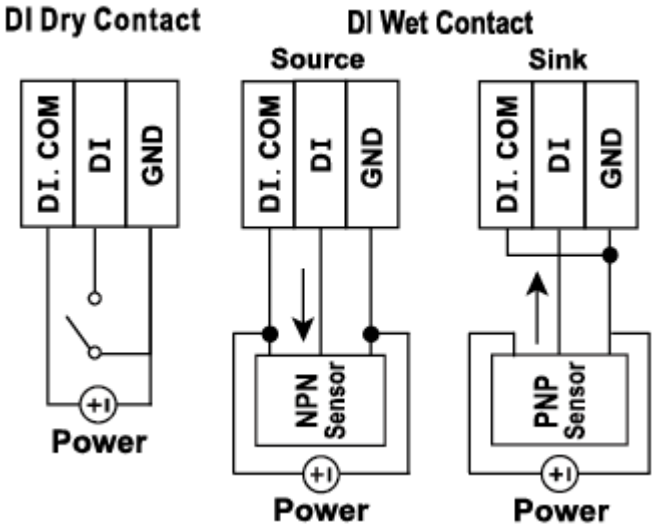
The ioLogik E1213 digital outputs have 3 possible external (EXT) power configurations. Only one field power configuration can be selected at a time (JP10 / 12V JP5 / 9V JP11) and the jumper must be inserted vertically, not horizontally. EXT power configuration settings are shown below:



The default setting is Field Power JP10.

NOTE The ioLogik E1213 has 4 pure DO channels and 4 hybrid DIO channels. For the 4 pure DO channels, you can use the jumpers to select the power configuration output (i.e., field power, 12 V, 9 V). But for the 4 hybrid DIO channels, you cannot use the jumpers to select the power configuration output. Instead, you can only use the jumpers to set the DIO channels to either DI mode or DO mode.

I/O Wiring Diagrams

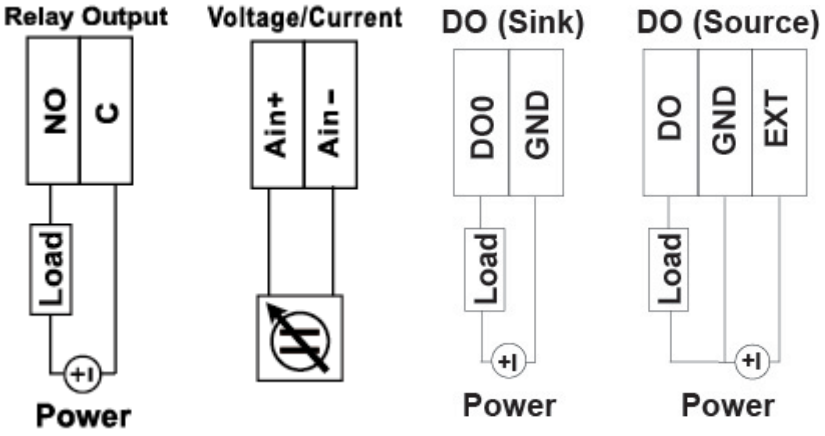


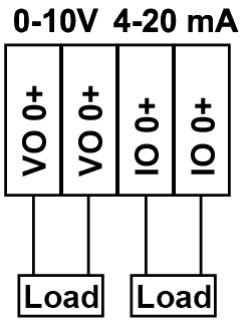
A **Dry Contact** is a contact that does not provide voltage.

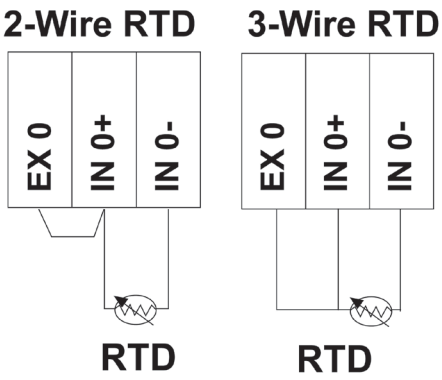
A **Wet Contact** is a contact that will provide voltage when closed.

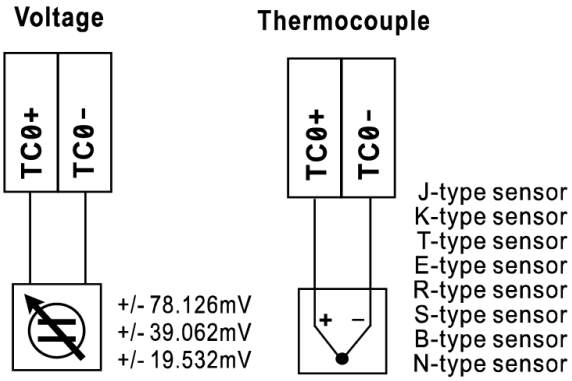
ATTENTION

Remove the screw on the back panel and open the cover to configure the jumpers.

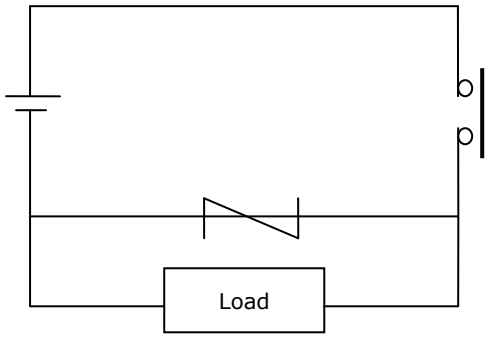








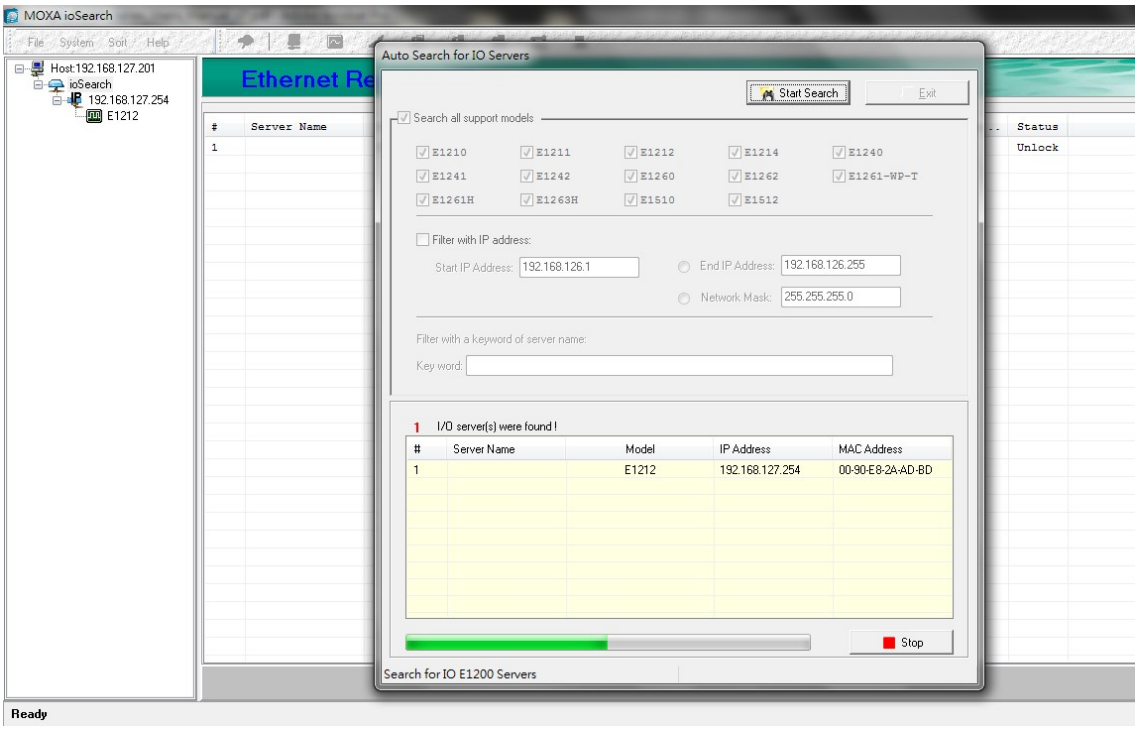
NOTE It is recommended to use a contact protection circuit for relay output. A varistor can serve as a contact protection circuit, where the parallel circuit connects to the Load.



ioSearch™ Installation

ioSearch™ is a search utility that helps the user locate ioLogik E1200 devices on the local network. Find the ioSearch™ utility in the **Document and Software CD** under **Software → ioSearch**, or download the latest version from Moxa's website.

1. **Installing from the CD:** Insert the **Document and Software CD** into the host computer. In the root directory of the CD, locate and run SETUP.EXE. The installation program will guide you through the installation process and install the ioSearch™ utility. You can also install the MXIO DLL library separately.
2. **Open ioSearch:** After installation is finished, run ioSearch™ from **Start → Program Files → MOXA → IO Server → Utility → ioSearch.**
3. **Search the network for the server:** On the menu bar, select **System → Auto Scan Active Ethernet I/O Server**. A dialog window will pop up. Click **Start Search** to begin searching for the ioLogik E1200.



If multiple ioLogik E1200 units are installed on the same network, remember that each unit has the same default IP address. You will need to assign a different IP address to each unit to avoid IP conflicts.

Load Factory Default Settings

There are three ways to restore the ioLogik E1200 to factory default settings.

1. Hold down the RESET button for 5 seconds
2. Right-click on the specific ioLogik device in the ioSearch™ utility and select **Reset to Default**
3. Select **Load Factory Default** from the web console

3

Using the Web Console

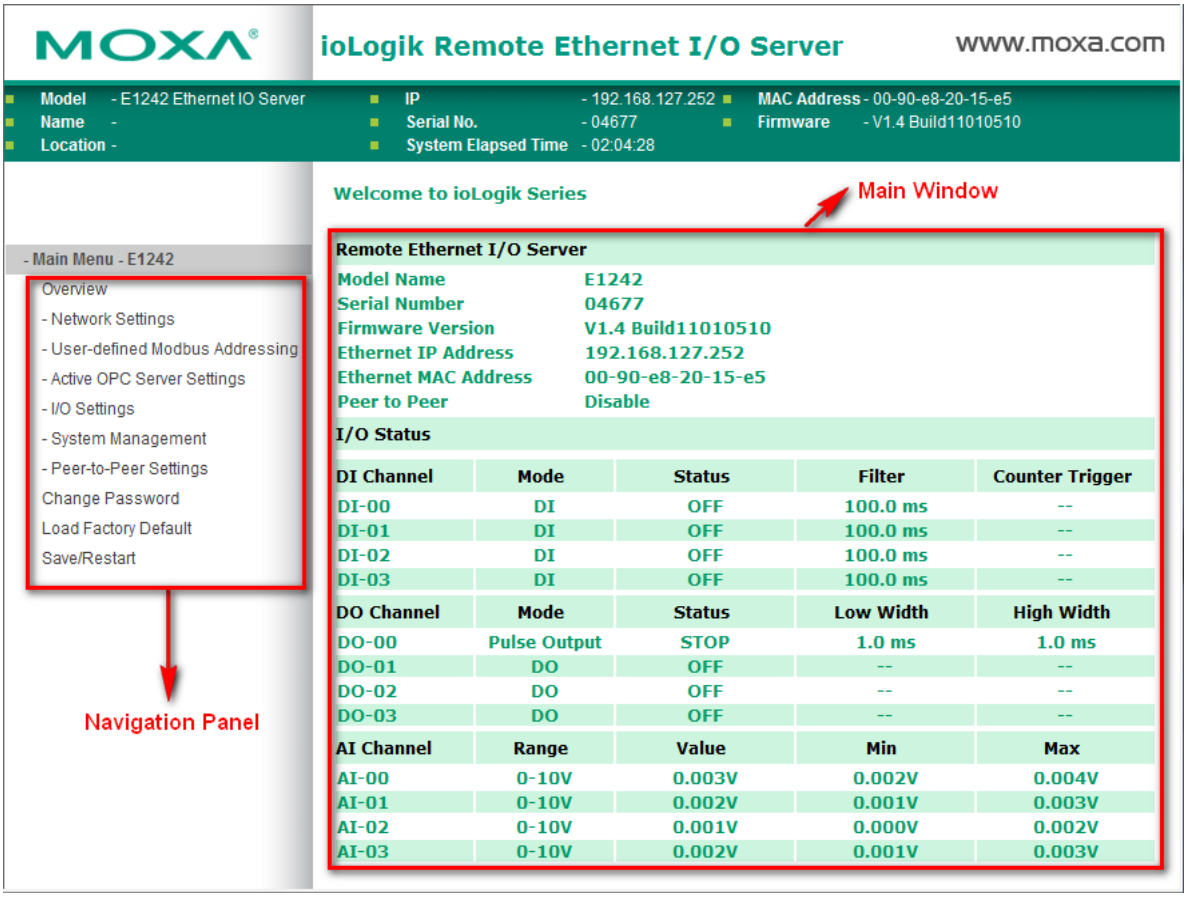
The ioLogik E1200's main configuration and management utility is the built-in web console, which can be used to configure a wide range of options.

The following topics are covered in this chapter:

- **Introduction to the Web Console**
- **Overview**
- **Network Settings for the Web Console**
  - General Settings
  - Ethernet Configuration
- **User-Defined Modbus Addressing**
  - Default Modbus Address
- **Active OPC Server Settings**
- **Tag Generation**
- **I/O Settings**
  - DI Channels
  - DO Channels
  - AI Channels
  - AI Input Range
  - AO Channels
  - RTD Channels
  - TC Channels
- **System Management**
  - Accessibility IP List
  - Network Connection
  - Firmware Update
  - Import System Configuration Settings
  - Export System Settings
- **Peer-to-Peer Networking**
  - Peer-to-Peer Settings (1-50)
  - Sample Peer-to-Peer Configuration
  - DO Safe Mode Settings
  - AO Safe Mode Settings
- **SNMP**
  - SNMP Trap
  - Using SNMP
- **Change Password**
- **Load Factory Defaults**
- **Save/Restart**

Introduction to the Web Console

The ioLogik E1200 web console is a browser-based configuration utility. When the ioLogik E1200 is connected to your network, you may enter the server's IP address in your web browser to access the web console.


MOXA
ioLogik Remote Ethernet I/O Server
www.moxa.com
Model - E1242 Ethernet IO Server
Name -
Location -
IP - 192.168.127.252
Serial No. - 04677
System Elapsed Time - 02:04:28
MAC Address - 00-90-e8-20-15-e5
Firmware - V1.4 Build11010510
Welcome to ioLogik Series
Main Window
- Main Menu - E1242
Overview
- Network Settings
- User-defined Modbus Addressing
- Active OPC Server Settings
- I/O Settings
- System Management
- Peer-to-Peer Settings
Change Password
Load Factory Default
Save/Restart
Navigation Panel
Remote Ethernet I/O Server
Model Name E1242
Serial Number 04677
Firmware Version V1.4 Build11010510
Ethernet IP Address 192.168.127.252
Ethernet MAC Address 00-90-e8-20-15-e5
Peer to Peer Disable
I/O Status
DI Channel Mode Status Filter Counter Trigger
DI-00 DI OFF 100.0 ms --
DI-01 DI OFF 100.0 ms --
DI-02 DI OFF 100.0 ms --
DI-03 DI OFF 100.0 ms --
DO Channel Mode Status Low Width High Width
DO-00 Pulse Output STOP 1.0 ms 1.0 ms
DO-01 DO OFF -- --
DO-02 DO OFF -- --
DO-03 DO OFF -- --
AI Channel Range Value Min Max
AI-00 0-10V 0.003V 0.002V 0.004V
AI-01 0-10V 0.002V 0.001V 0.003V
AI-02 0-10V 0.001V 0.000V 0.002V
AI-03 0-10V 0.002V 0.001V 0.003V

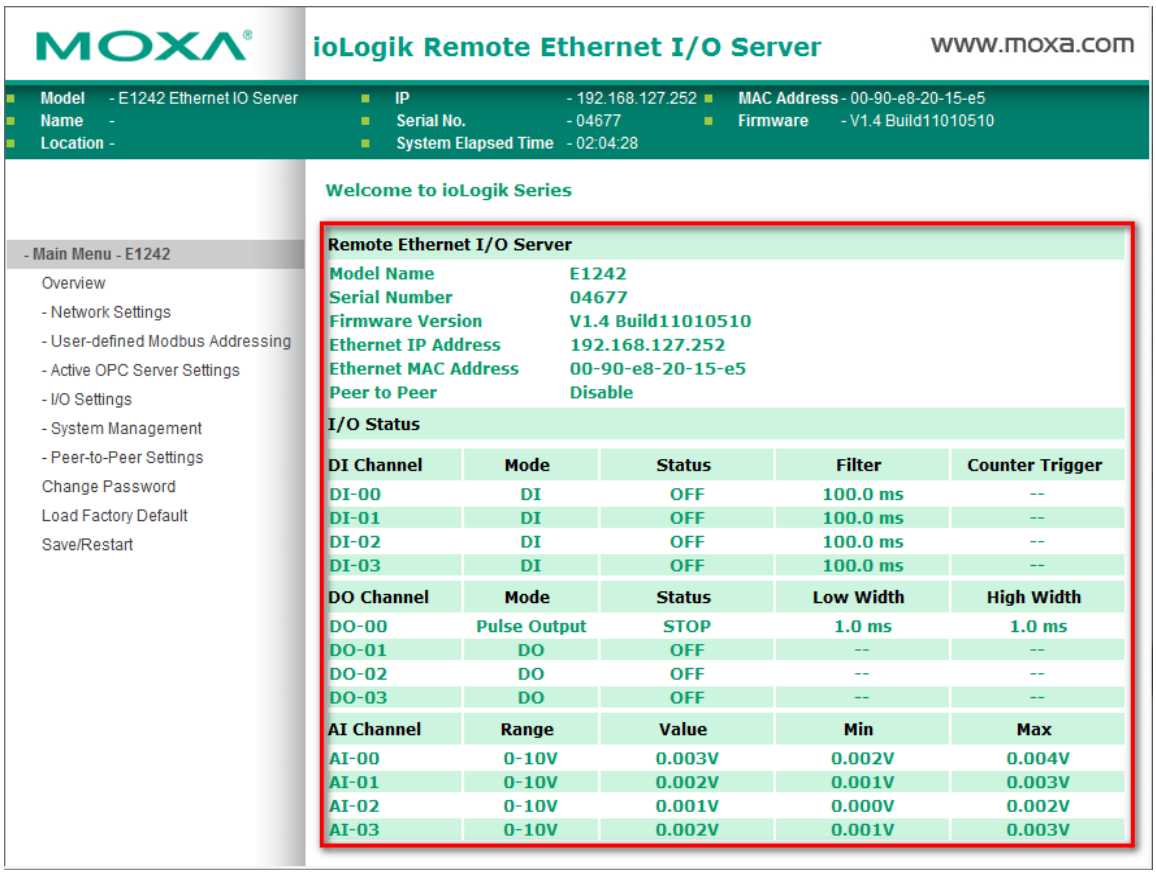
The left panel is the navigation panel and contains an expandable menu tree for navigating among the various settings and categories. When you click on a menu item in the navigation panel, the main window will display the corresponding options for that item. Configuration changes can then be made in the main window. For example, if you click on **Network Settings** in the navigation panel, the main window will show a page of basic settings that you can configure.

You must click on the **Submit** button after making configuration changes. The **Submit** button will be located at the bottom of every page that has configurable settings. If you navigate to another page without clicking the **Submit** button, your changes will not be retained.

Submitted changes will not take effect until they are saved and the ioLogik E1200 is restarted! You may save and restart the server in one step by clicking on the **Save/Restart** button after you submit a change. If you need to make several changes before restarting, you may save your changes without restarting by selecting **Save/Restart** in the navigation panel. If you restart the ioLogik E1200 without saving your configuration, the ioLogik E1200 will discard all submitted changes.

Overview

The **Overview** page contains basic information about the ioLogik E1200, including the model name, serial number, firmware version, MAC address, and current IP address. Most importantly, you can see the current I/O status by pressing the F5 key on the computer keyboard to refresh the page.


MOXA
ioLogik Remote Ethernet I/O Server
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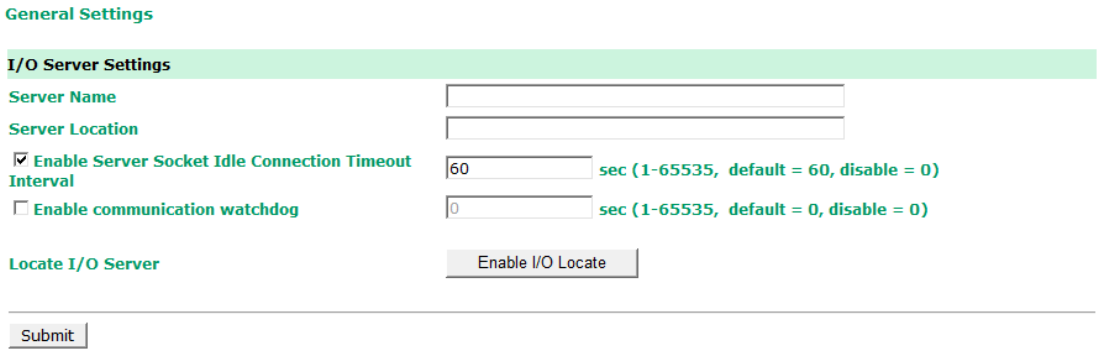
Model - E1242 Ethernet IO Server
Name -
Location -
IP - 192.168.127.252
Serial No. - 04677
System Elapsed Time - 02:04:28
MAC Address - 00-90-e8-20-15-e5
Firmware - V1.4 Build11010510
Welcome to ioLogik Series
- Main Menu - E1242
Overview
- Network Settings
- User-defined Modbus Addressing
- Active OPC Server Settings
- I/O Settings
- System Management
- Peer-to-Peer Settings
Change Password
Load Factory Default
Save/Restart
Remote Ethernet I/O Server
Model Name E1242
Serial Number 04677
Firmware Version V1.4 Build11010510
Ethernet IP Address 192.168.127.252
Ethernet MAC Address 00-90-e8-20-15-e5
Peer to Peer Disable
I/O Status
DI Channel Mode Status Filter Counter Trigger
DI-00 DI OFF 100.0 ms --
DI-01 DI OFF 100.0 ms --
DI-02 DI OFF 100.0 ms --
DI-03 DI OFF 100.0 ms --
DO Channel Mode Status Low Width High Width
DO-00 Pulse Output STOP 1.0 ms 1.0 ms
DO-01 DO OFF -- --
DO-02 DO OFF -- --
DO-03 DO OFF -- --
AI Channel Range Value Min Max
AI-00 0-10V 0.003V 0.002V 0.004V
AI-01 0-10V 0.002V 0.001V 0.003V
AI-02 0-10V 0.001V 0.000V 0.002V
AI-03 0-10V 0.002V 0.001V 0.003V

Network Settings for the Web Console

General Settings

On the **General Settings** page, you can assign a server name and location to assist you in differentiating between different ioLogik E1200 units. You may also configure the Modbus/TCP timeout interval or enable the **Communication Watchdog** function.



Enable Server Socket Idle Connection Timeout Interval automatically disconnects the Modbus/TCP connection from the server after a specified time period to free up the port for the next connection.

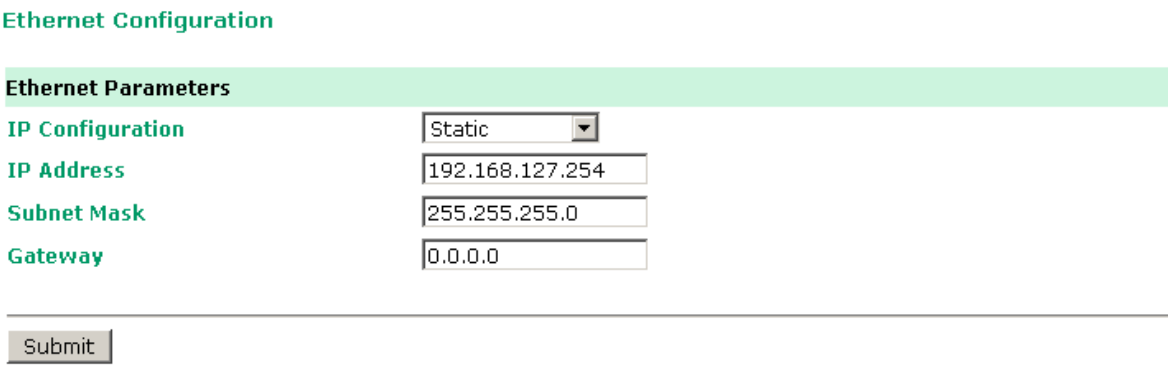
Enable Communication Watchdog activates **Safe Mode** when a specified period of time has passed and there is a loss of Modbus/TCP network connectivity. **Safe Mode** is specially designed for products with output channels to output a suitable value (see Chapter 3: **AO Safe Mode Setting**) or status (see Chapter 3: **DO Safe Mode Setting**) when the ioLogik E1200 cannot be controlled by a remote PC (such as in the event of a network failure). By default, the watchdog is disabled. Users can configure how each output channel responds on the I/O Settings page.

To enable the Communication Watchdog function, select the **Enable Communication Watchdog** checkbox, set the timeout value, and then restart the server. When the watchdog is enabled, the ioLogik E1200 will enter **Safe Mode** after there is a disruption in communication that exceeds the specified time limit.

Enable I/O Locate enables remote toggling of the **Ready** LED from off to flashing to enable remote control of LEDs for easier location of devices when troubleshooting.

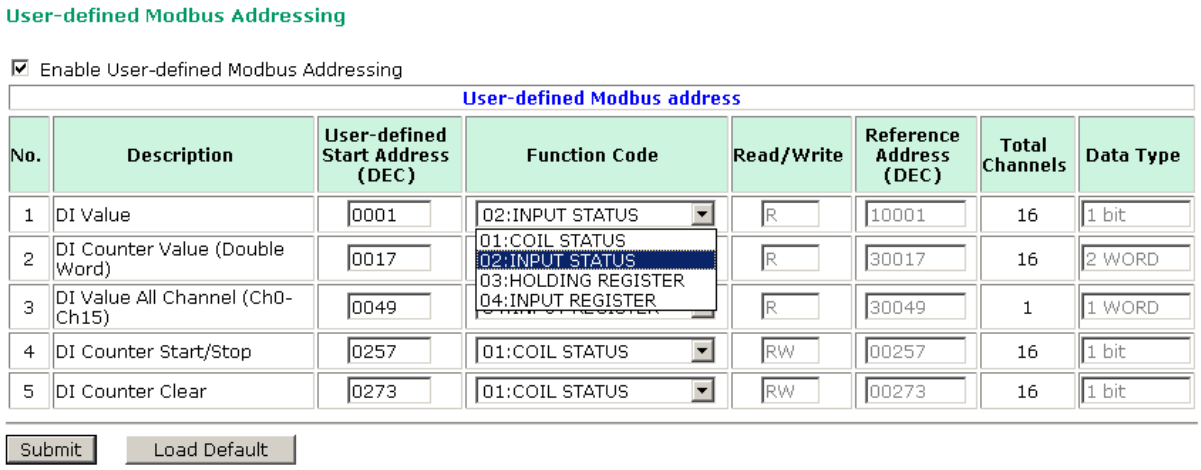
Ethernet Configuration

On the **Ethernet Configuration** page, you can set up a static or dynamic IP address for the ioLogik E1200, and configure the subnet mask and gateway address.



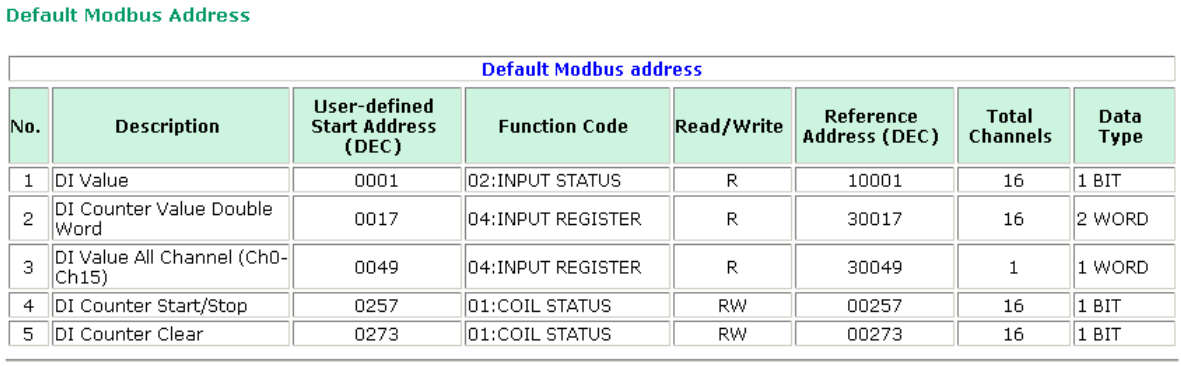
User-Defined Modbus Addressing

The input and output address can be configured in a different format on a specific settings page. Check the **Enable User-defined Modbus Addressing** box, select the Modbus function, and then configure the start address of each item.


User-defined Modbus Addressing
Enable User-defined Modbus Addressing
User-defined Modbus address
No.
Description
User-defined Start Address (DEC)
Function Code
Read/Write
Reference Address (DEC)
Total Channels
Data Type
1 DI Value 0001 02:INPUT STATUS R 10001 16 1 bit
2 DI Counter Value (Double Word) 0017 R 30017 16 2 WORD
3 DI Value All Channel (Ch0-Ch15) 0049 R 30049 1 1 WORD
4 DI Counter Start/Stop 0257 01:COIL STATUS RW 00257 16 1 bit
5 DI Counter Clear 0273 01:COIL STATUS RW 00273 16 1 bit
01:COIL STATUS
02:INPUT STATUS
03:HOLDING REGISTER
04:INPUT REGISTER
Submit
Load Default

Default Modbus Address

You can view the default Modbus address for all I/O devices on the **Default Modbus Address** settings page. However, only the starting address will be displayed for each item with multiple reference addresses. For example, if the reference addresses for DI Value start from 10001 and the second DI channel's reference address is 10002, only the first DI channel's Modbus address of 10001 will be displayed. See the diagram below.


Default Modbus Address
Default Modbus address
No.
Description
User-defined Start Address (DEC)
Function Code
Read/Write
Reference Address (DEC)
Total Channels
Data Type
1 DI Value 0001 02:INPUT STATUS R 10001 16 1 BIT
2 DI Counter Value Double Word 0017 04:INPUT REGISTER R 30017 16 2 WORD
3 DI Value All Channel (Ch0-Ch15) 0049 04:INPUT REGISTER R 30049 1 1 WORD
4 DI Counter Start/Stop 0257 01:COIL STATUS RW 00257 16 1 BIT
5 DI Counter Clear 0273 01:COIL STATUS RW 00273 16 1 BIT

ATTENTION

Disable the user-defined Modbus addressing function if using the MXIO (.NET) library or Active OPC Server to control or monitor the ioLogik E1200's I/O status.

Active OPC Server Settings

Moxa's Active OPC Server™ is a software package operated as an OPC driver of an HMI or SCADA system. It seamlessly connects Moxa's ioLogik products to a wide variety of SCADA systems, including the most popular: Wonderware, Citect, and iFix. Active OPC Server™ conforms to the OPC Foundation's latest data access standard, DA 3.0, to connect with other standards-compliant devices and host OPC machines.

Hardware Requirements	
CPU	Intel Pentium 4 and above
RAM	512 MB (1024 MB recommended)
Network Interface	10/100 MB Ethernet
Software Requirements	
Operating System	Microsoft Windows 2000, XP or later
Editor (not required)	Microsoft Office 2003 (Access 2003) or later
OPC Server Specifications	
OPC Data Access	1.0a, 2.0, 2.05a, 3.0
Max. No. of Tags	5000 (V1.12 or later)

Active OPC Server can be downloaded from the Moxa website support page at www.moxa.com/support/.

After downloading the Active OPC Server file, unzip the file and run Install.exe. The installation program will guide you through the installation process and install the Active OPC Server Utility.

For more details on Active OPC Server installation and use, please refer to the Active OPC Server user's manual or Chapter 5.

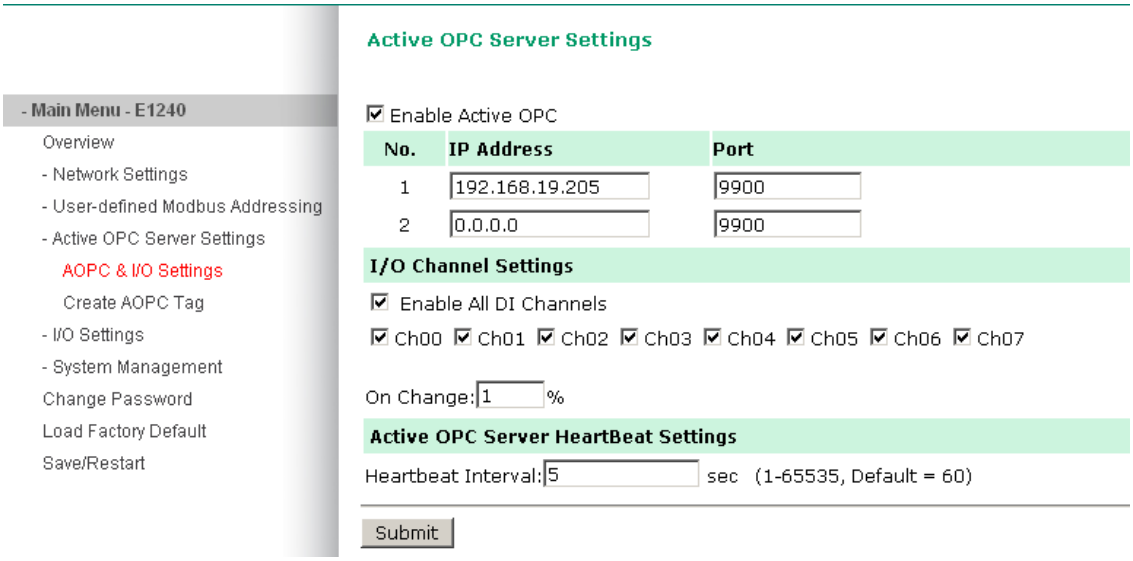
Tag Generation

Use the web console to create Active OPC (AOPC) tags for the ioLogik E1200 by opening your browser and navigating to the **Active OPC Server Settings** page.

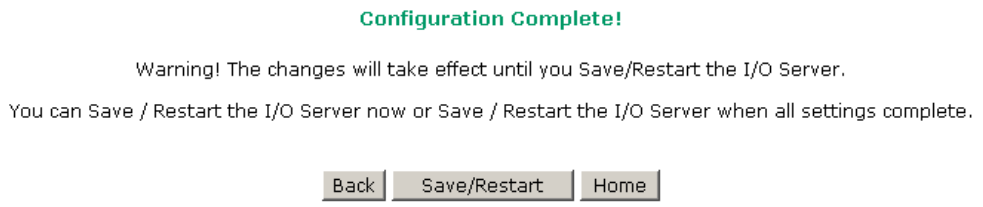
Follow these steps to create the tags and send them from the ioLogik E1200 to Active OPC Server:

1. On the **AOPC & I/O Settings** page, select the **Enable Active OPC** checkbox and specify the IP address where the Active OPC Server is installed.
2. Select the I/O channels that need to be created in Active OPC Server.
3. Configure the **Heartbeat Interval**, if necessary.

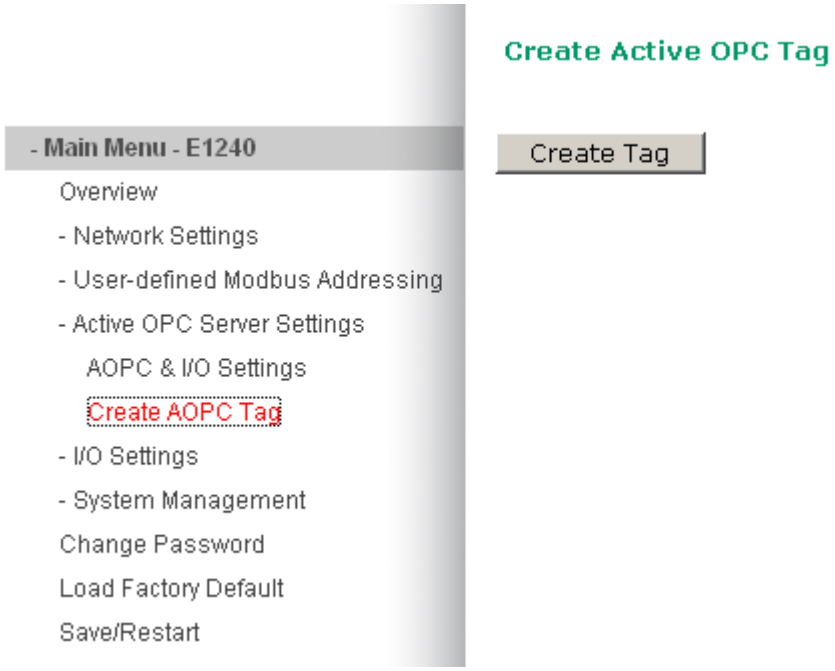
NOTE The **Heartbeat Interval** can be used to determine the connection status between the ioLogik E1200 and Active OPC Server, and to ensure that the ioLogik is connected and alive. If the heartbeat interval is set and the network between the ioLogik E1200 and Active OPC Server is down, Active OPC Server will detect the stopped heartbeat and the **Quality** column in the Active OPC will display BAD to indicate the loss of connectivity.



4. Click the **Submit** button and then the **Save/Restart** button on the next page.


Configuration Complete!
Warning! The changes will take effect until you Save/Restart the I/O Server.
You can Save / Restart the I/O Server now or Save / Restart the I/O Server when all settings complete.
Back
Save/Restart
Home

5. On the **Create AOPC Tag** page, click on the **Create Tags** button to "push" tag configurations to the Active OPC Server utility.

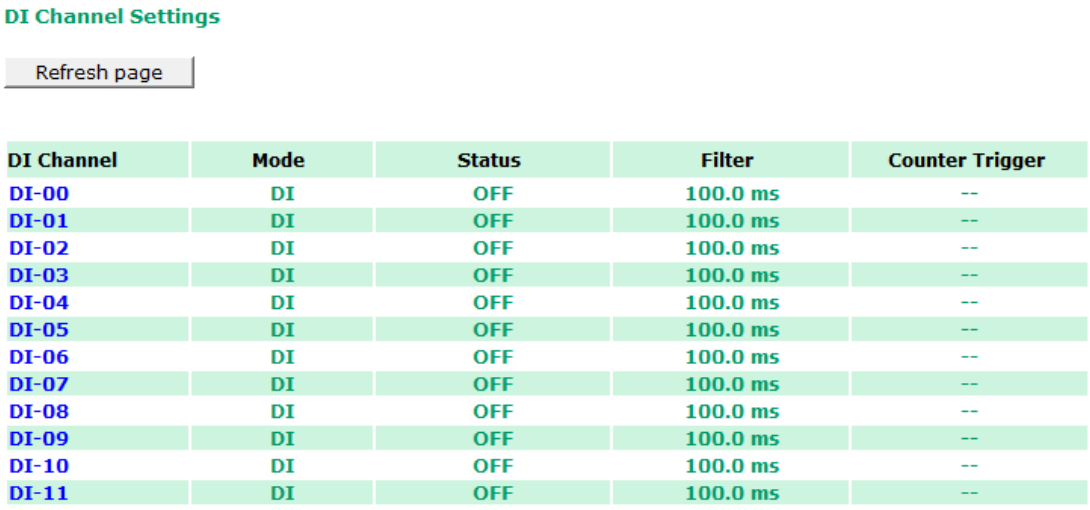


6. Launch the Active OPC Server utility and the tags will be automatically created. Remember to save the configuration of the Active OPC Server when exiting the program.

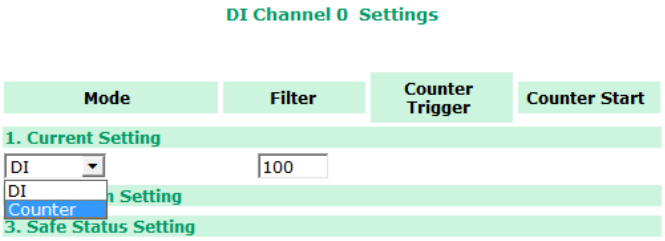
I/O Settings

DI Channels

The status of each DI (digital input) channel appears on the **DI Channel Settings** page.

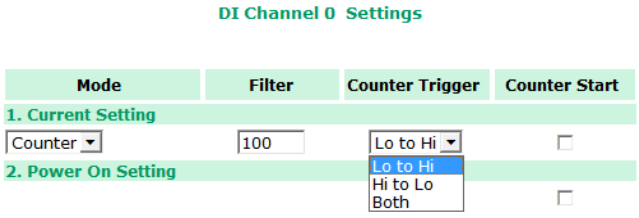

DI Channel Settings
Refresh page
DI Channel
Mode
Status
Filter
Counter Trigger
DI-00 DI OFF 100.0 ms --
DI-01 DI OFF 100.0 ms --
DI-02 DI OFF 100.0 ms --
DI-03 DI OFF 100.0 ms --
DI-04 DI OFF 100.0 ms --
DI-05 DI OFF 100.0 ms --
DI-06 DI OFF 100.0 ms --
DI-07 DI OFF 100.0 ms --
DI-08 DI OFF 100.0 ms --
DI-09 DI OFF 100.0 ms --
DI-10 DI OFF 100.0 ms --
DI-11 DI OFF 100.0 ms --

You can also configure each channel's digital input mode and parameters by clicking on the channel. DI channels can operate in **DI mode** or **Event Counter mode**.



Activate **Event Counter** mode by selecting the **Counter Start** field and configure the **Counter Trigger** by selecting **Lo to Hi, Hi to Lo,** or **Both** from the dropdown menu. When the **Counter Start** field is not selected, you can still activate the counter by using Modbus commands.

NOTE Confirm that the Counter Filter is not set to 0; otherwise, the counter will never be activated.



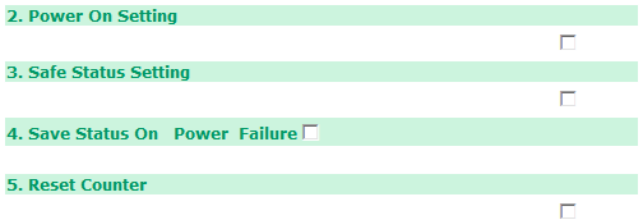
Power On Settings: You may configure DI channels in **Event Counter** mode whether or not counting begins when powering up.

Safe Status Settings: For DI channels in Event Counter mode, you can configure whether or not counting starts or continues when Safe Status has been activated. When the network connection is lost, as specified in the Host Connection Watchdog, the ioLogik E1200 will start or stop the counter according to the channel's Safe Status settings.

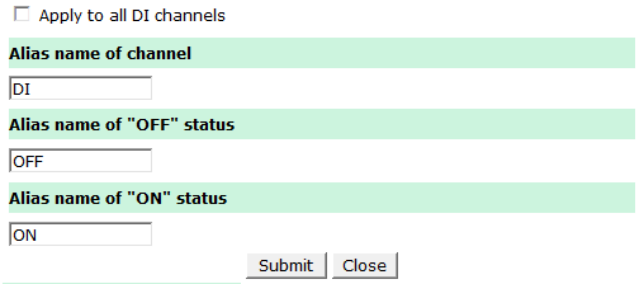
NOTE The Host Connection Watchdog is disabled by default, and must be enabled for Safe Status settings to take effect.

Save Status On Power Failure: The ioLogik E1200 will automatically save the counter value when there is a power failure if this function selected.

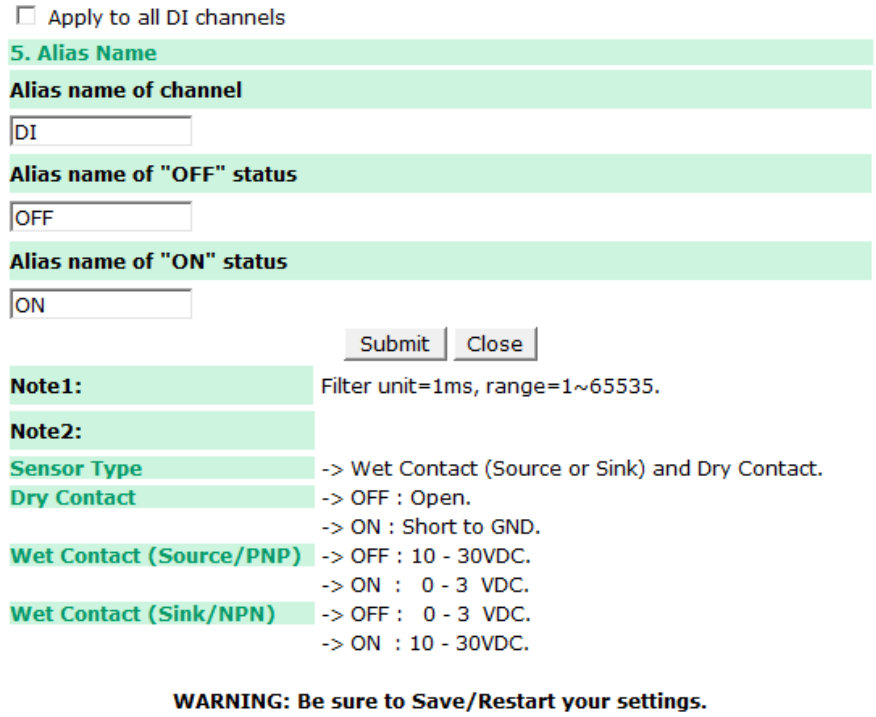
Reset Counter: Select this function to reset the counter.



The DI channel's **Alias Name** and logic definition can also be configured on this page. You can apply the alias name to all channels by selecting the **Apply to all DI channels** checkbox.



DI Channel Specification:


Apply to all DI channels
5. Alias Name
Alias name of channel
DI
Alias name of "OFF" status
OFF
Alias name of "ON" status
ON
Submit
Close
Note1: Filter unit=1ms, range=1~65535.
Note2:
Sensor Type -> Wet Contact (Source or Sink) and Dry Contact.
Dry Contact -> OFF : Open.
-> ON : Short to GND.
Wet Contact (Source/PNP) -> OFF : 10 - 30VDC.
-> ON : 0 - 3 VDC.
Wet Contact (Sink/NPN) -> OFF : 0 - 3 VDC.
-> ON : 10 - 30VDC.

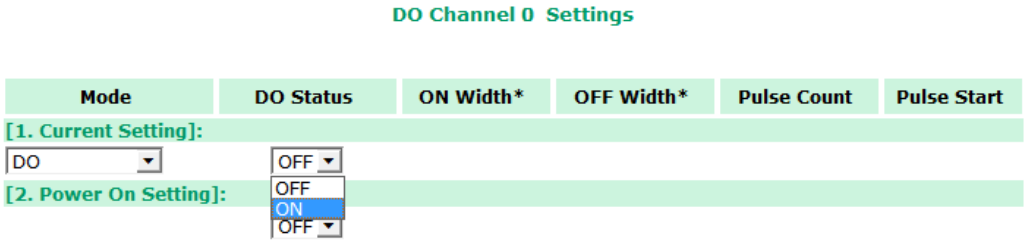
WARNING: Be sure to Save/Restart your settings.

DO Channels

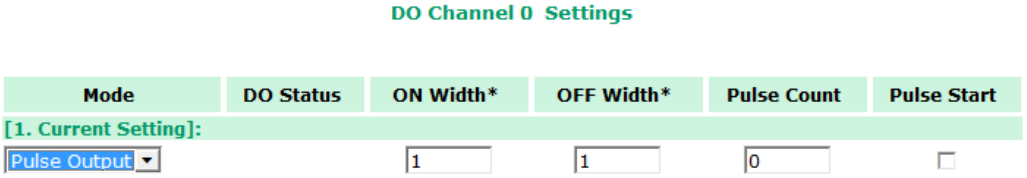
On the **I/O Setting: DO (Digital Output) Channels** page, you can configure each DO channel by clicking on the channel.

DO Channel	Mode	Status	ON Width	OFF Width
DO-00	Pulse Output	STOP	100.0 ms	100.0 ms
DO-01	Pulse Output	STOP	100.0 ms	100.0 ms
DO-02	Pulse Output	STOP	100.0 ms	100.0 ms
DO-03	Pulse Output	STOP	100.0 ms	100.0 ms
DO-04	Pulse Output	STOP	100.0 ms	100.0 ms
DO-05	Pulse Output	STOP	100.0 ms	100.0 ms
DO-06	Pulse Output	STOP	100.0 ms	100.0 ms
DO-07	Pulse Output	STOP	100.0 ms	100.0 ms
DO-08	Pulse Output	STOP	100.0 ms	100.0 ms
DO-09	Pulse Output	STOP	100.0 ms	100.0 ms
DO-10	Pulse Output	STOP	100.0 ms	100.0 ms
DO-11	Pulse Output	STOP	100.0 ms	100.0 ms
DO-12	Pulse Output	STOP	100.0 ms	100.0 ms
DO-13	Pulse Output	STOP	100.0 ms	100.0 ms
DO-14	Pulse Output	STOP	100.0 ms	100.0 ms
DO-15	Pulse Output	STOP	100.0 ms	100.0 ms

DO channels can operate in **DO** mode when the status is either ON or OFF.



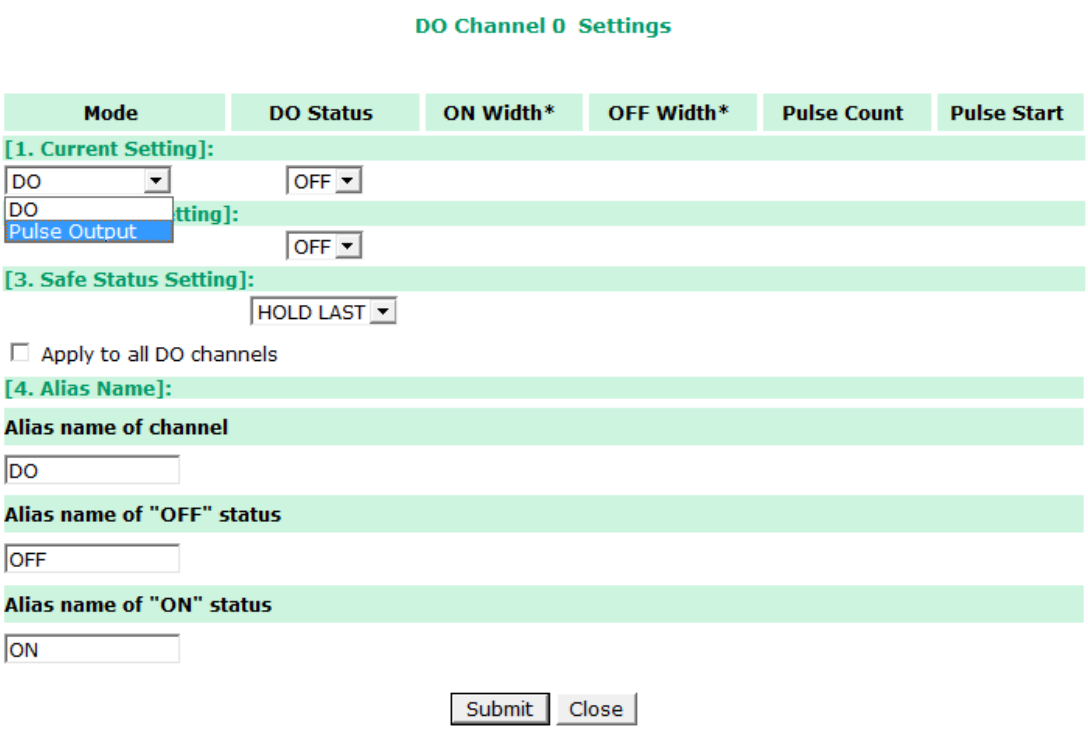
If you select **Pulse Output** mode, you can specify the **ON Width** and **OFF Width** to generate a square wave.



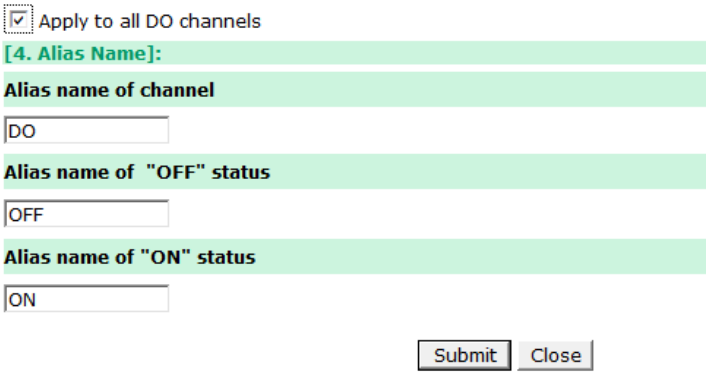
Pulse Width unit = 1 ms, range = 1–65535

When configuring individual channels, if the **Power On Setting** is selected, the Pulse Output will start as soon as the ioLogik E1200 is powered on. If the **Safe Status Setting** is selected, the Pulse Output will start only when the E1200 has entered Safe Status mode. In contrast, when neither of these settings is selected and the **Pulse Start** field is selected, the ioLogik E1200 will automatically stop the Pulse Output when the ioLogik E1200 is either powered on or in Safe Status mode.

NOTE Safe Status is controlled by the Communication Watchdog under General Settings, which is disabled by default. If the Communication Watchdog is disabled, the ioLogik E1200 will never enter Safe Mode and your Safe Status settings will have no effect.

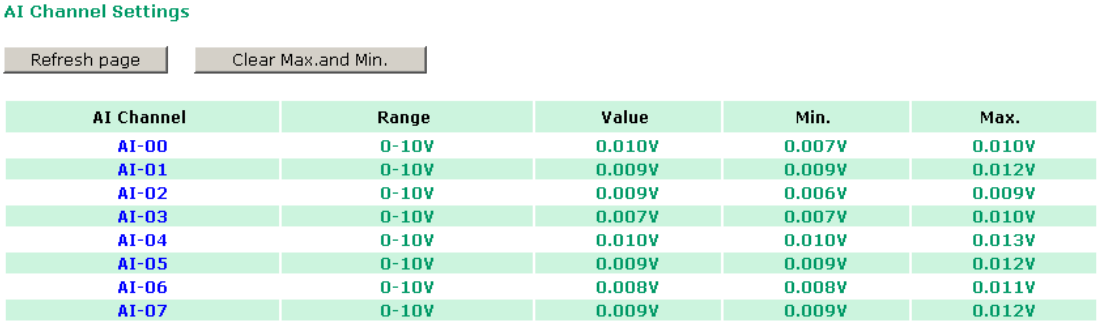


The DO channel's **Alias Name** and logic definition can also be configured on this page. You can apply the alias name to all channels by click on the **Apply to all DO channels** box.



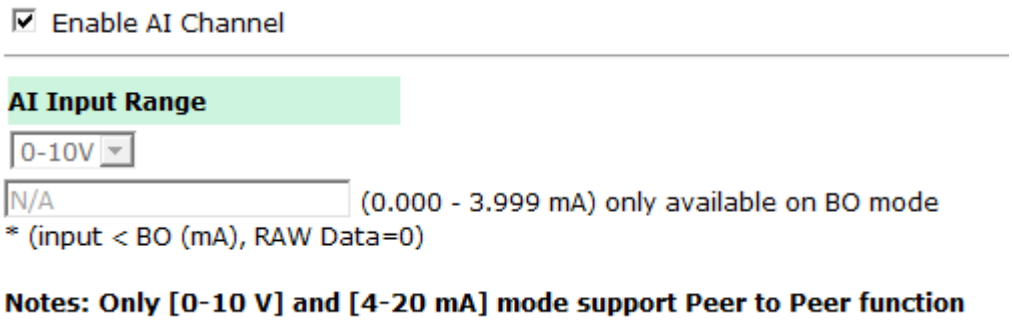
AI Channels

The current status of each AI (analog input) channel can be viewed on the **AI Channel Settings** page.

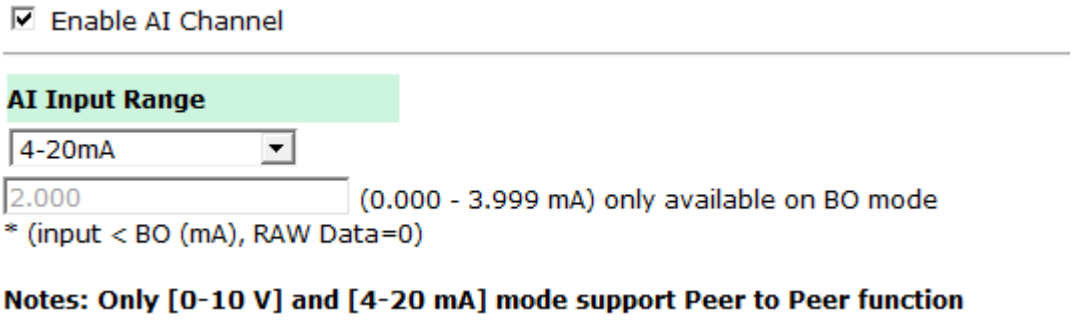


Click on a specific AI channel to enable or disable it by selecting the **Enable AI Channel** field. There are two modes available for the AI channels:

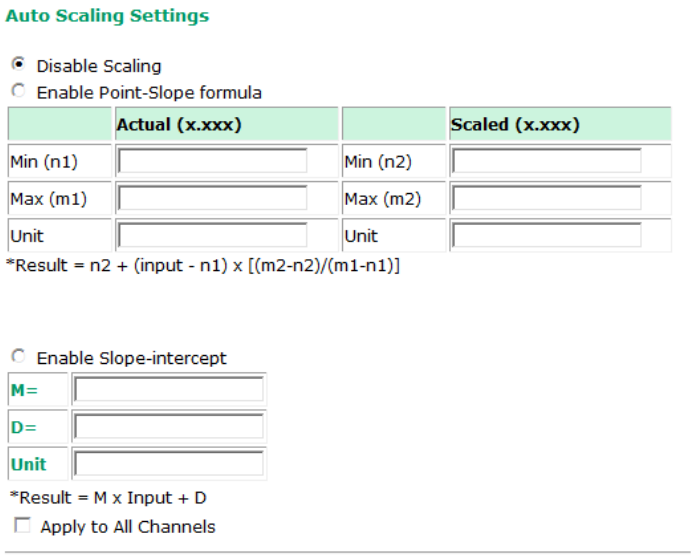
1. **Voltage Mode** (See the **Jumper Settings (DIO and AI)** in Chapter 2 for more details)


Enable AI Channel
AI Input Range
0-10V
N/A
(0.000 - 3.999 mA) only available on BO mode
* (input < BO (mA), RAW Data=0)
Notes: Only [0-10 V] and [4-20 mA] mode support Peer to Peer function

2. **Current Mode** (See the **Jumper Settings (DIO and AI)** in Chapter 2 for more details)


Enable AI Channel
AI Input Range
4-20mA
2.000
(0.000 - 3.999 mA) only available on BO mode
* (input < BO (mA), RAW Data=0)
Notes: Only [0-10 V] and [4-20 mA] mode support Peer to Peer function

Auto Scaling and **Slope-intercept** functions of the AI value can be defined on this page.



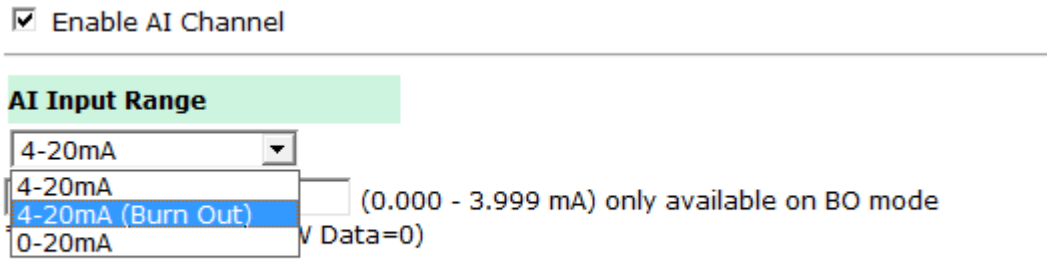
AI Input Range

Set the AI input ranges for each mode, as follows:

1. **Voltage Mode (V)** (See **Jumper Settings (DIO and AI)** in Chapter 2 for more details)
   There is only one default analog **Voltage** input range: [0-10V]
2. **Current Mode (mA)** (See **Jumper Settings (DIO and AI)** in Chapter 2 for more details)
   There are three modes in the analog **Current** input range: [4-20 mA], [0-20 mA], [4-20 mA (Burn Out)]

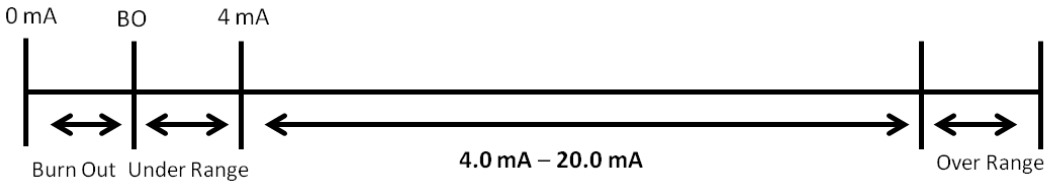
NOTE	Only input ranges [0-10 V] and [4-20 mA] support peer-to-peer networking.

AI Input: Current Mode



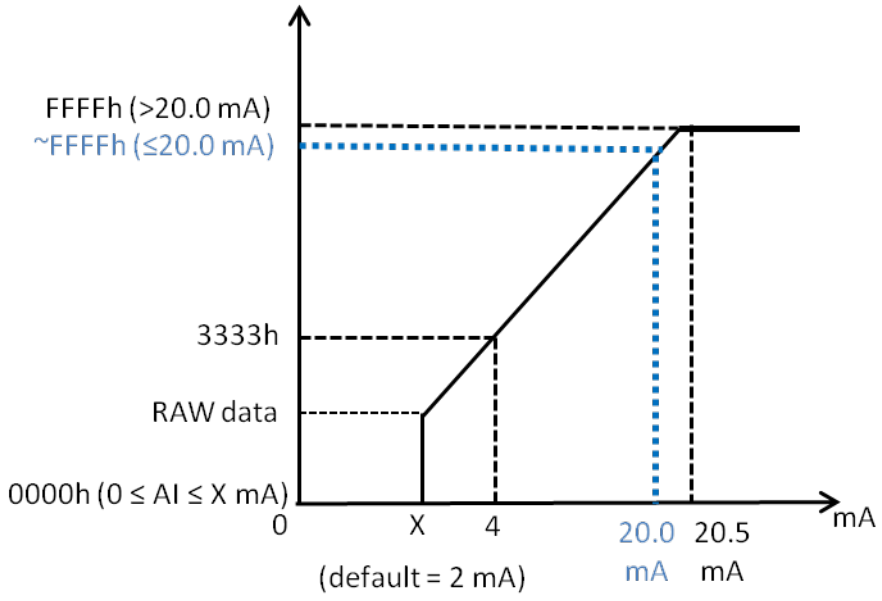
Notes: Only [0-10 V] and [4-20 mA] mode support Peer to Peer function

Burn Out mode indicates when the Current AI has burned out. For example, the 4–20 mA **Burn Out** mode is defined in the following diagram:



Users can define **Burn Out** (BO) values (default = 2 mA) for selected ranges. When input values are in the **Burn Out** range, raw data will register as 0000h to indicate that the analog input has burned out. The definition of raw data is as follows:

Burnout Value (BO)	0.0 < BO < 4.0	User defined (default 2 mA)
Burnout State	0 ≤ AI < BO mA	S/W output 0000h
Under Range	BO ≤ AI < 4 mA	S/W output raw data
Normal Range	4 ≤AI ≤ 20.00 mA	S/W output raw data until FFFEh
Over Range	XX > 20.00 mA	S/W output FFFFh

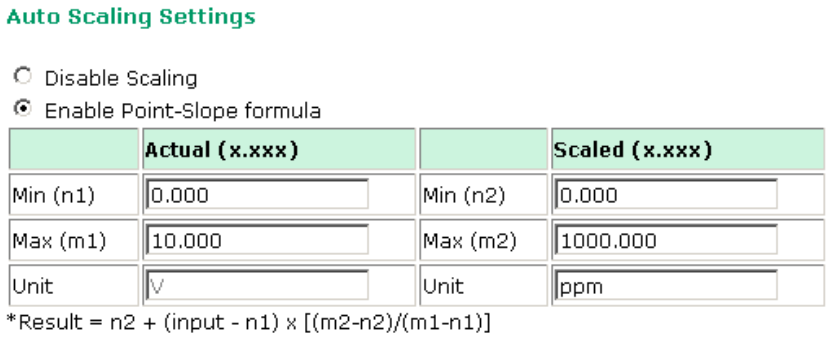


ATTENTION

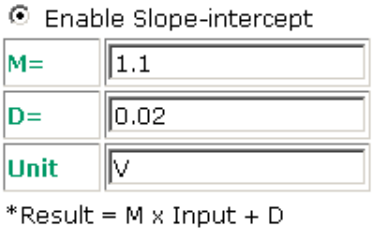
When configuring the jumpers to select voltage or current measurement for the AI channels, open the cover by first removing the screw on the back panel. For details on jumper settings, see the **Jumper Settings (DIO and AI)** section in Chapter 2.

Selecting **Enable Point-Slope formula** on the **Auto Scaling Settings** page will linearly convert the actual current or voltage value into other user-defined units, such as percentage or ppm (parts per million).

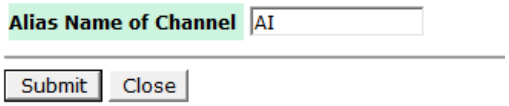
NOTE The scaled value's Modbus address differs from the original value.



The slope-intercept function is used to compensate when the measurement requires a slight adjustment.

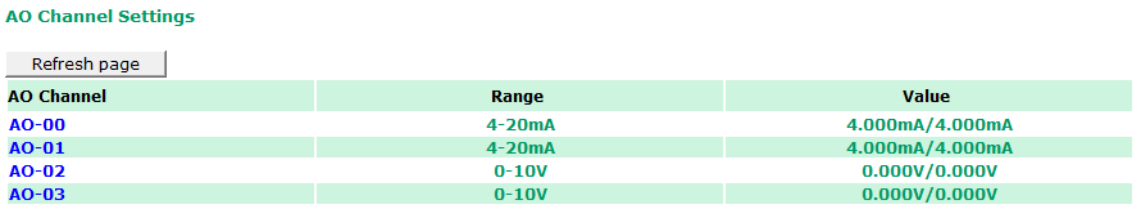


The AI channel's **Alias Name** can also be configured on this page.



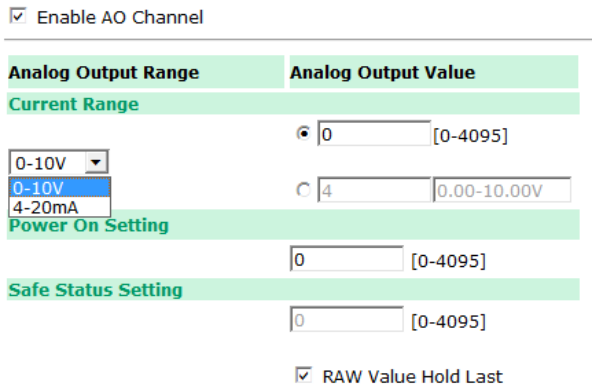
AO Channels

The current status of each AO (analog output) channel can be viewed on the **AO Channel Settings** page:



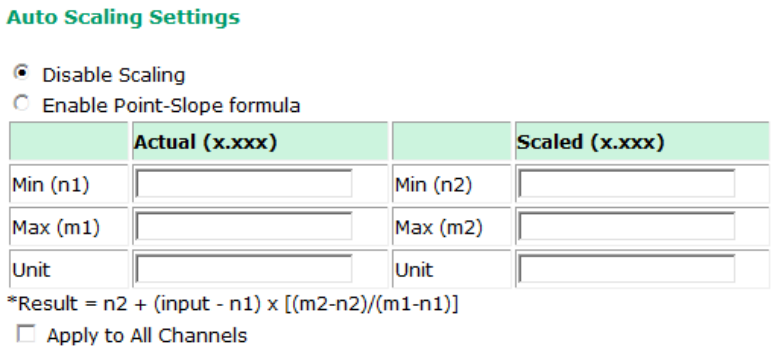
Click on a specific channel to access the AO channel settings, and then select the **Enable AO Channel** box. The Auto Scaling function of the AO value can be defined on the same page.

There are two modes for the AO channels, **Voltage Mode** (V) and **Current Mode** (mA).

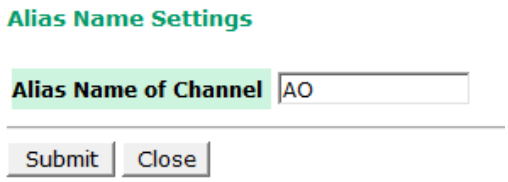


Enabling the **Point-Slope Formula** function on the **Auto Scaling Settings** page will linearly convert the actual current or voltage value into other user-defined units, such as percentage or ppm (parts per million).

NOTE The scaled value's Modbus address differs from the original value.

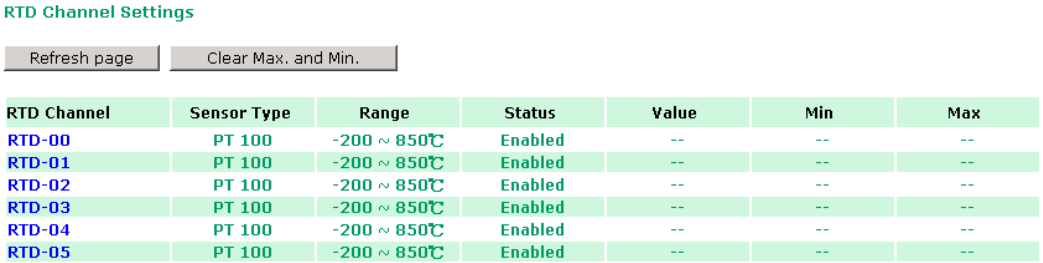


The AO channel's **Alias Name** can also be configured on this page.



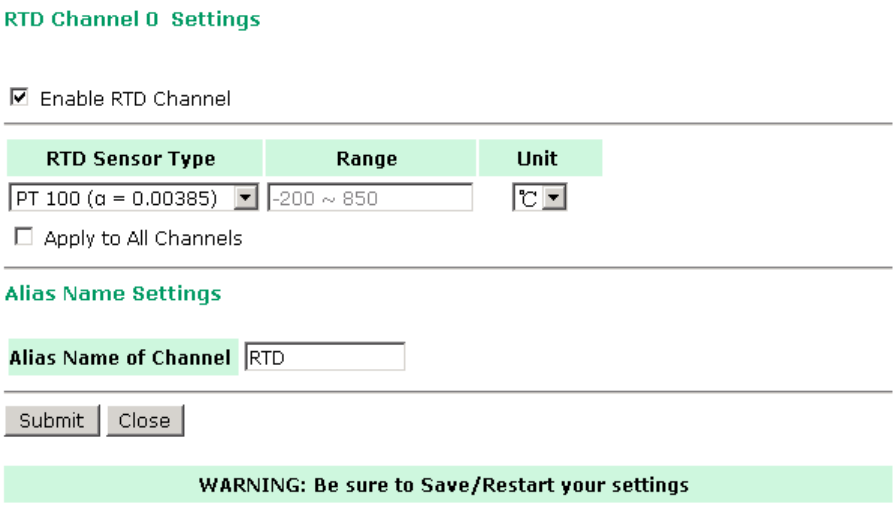
RTD Channels

The current status of each RTD (Resistance Temperature Detector) channel can be viewed on the **RTD Channel** page.

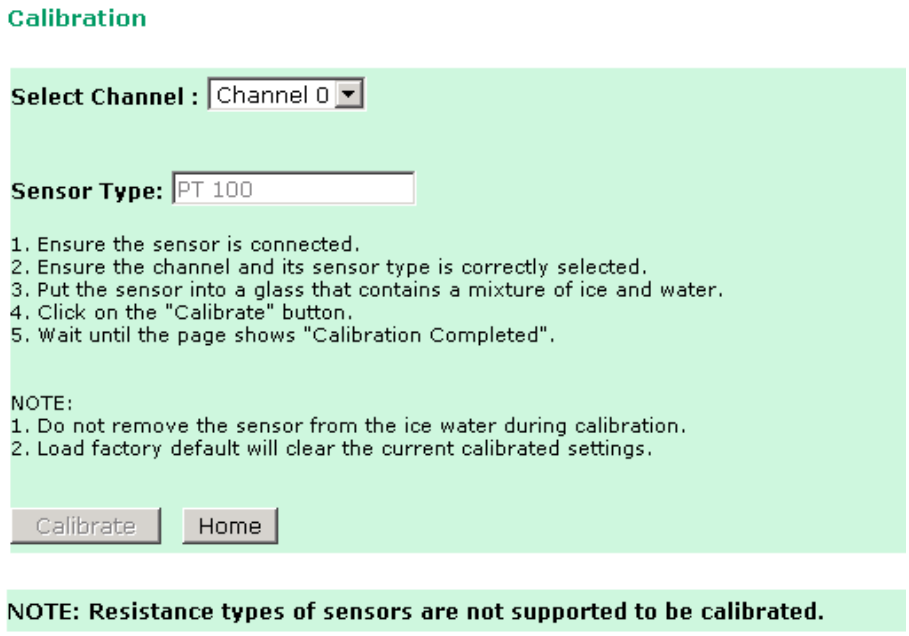


Click on a specific channel to access the RTD channel settings.

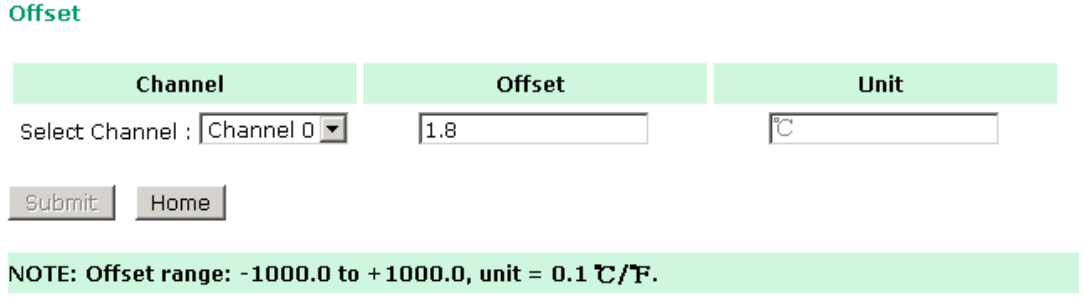
Select the **Enable RTD Channel** checkbox and then select the sensor type from the dropdown menu that meets the physical attachment to the ioLogik E1200.



The ioLogik E1200 allows you to calibrate the temperature sensors. In each channel configuration section, follow the instructions and click **Calibrate** button to start the RTD sensor calibration. Each calibration requires around 30 seconds per channel.

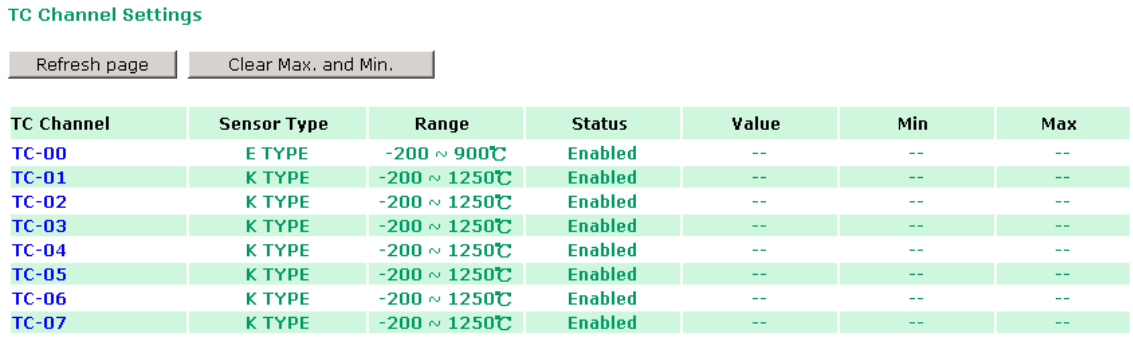

Calibration
Select Channel :
Channel 0
Sensor Type:
PT 100
1. Ensure the sensor is connected.
2. Ensure the channel and its sensor type is correctly selected.
3. Put the sensor into a glass that contains a mixture of ice and water.
4. Click on the "Calibrate" button.
5. Wait until the page shows "Calibration Completed".
NOTE:
1. Do not remove the sensor from the ice water during calibration.
2. Load factory default will clear the current calibrated settings.
Calibrate
Home
NOTE: Resistance types of sensors are not supported to be calibrated.

The ioLogik E1200 allows you to manually adjust the current temperature reading. In each channel configuration section, select the channel, apply the offset value, and click the **Submit** button.



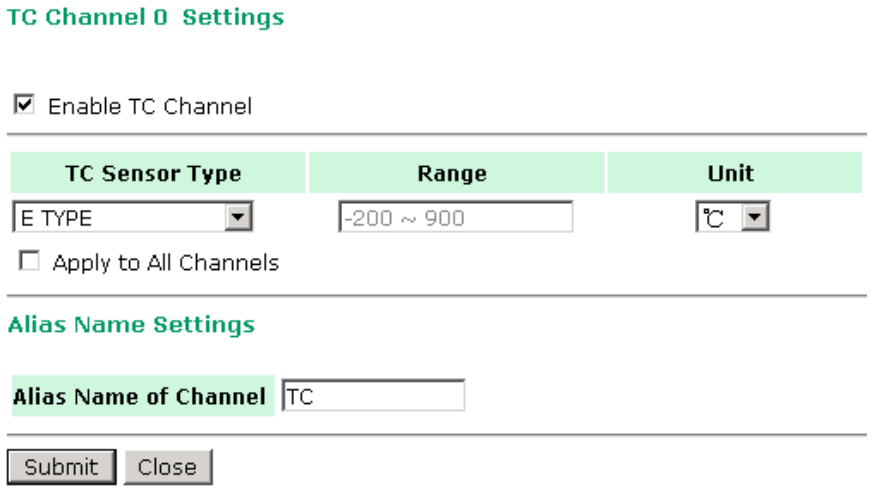
TC Channels

The current status of each TC (Thermocouple) channel can be viewed on the **TC Channel** page.

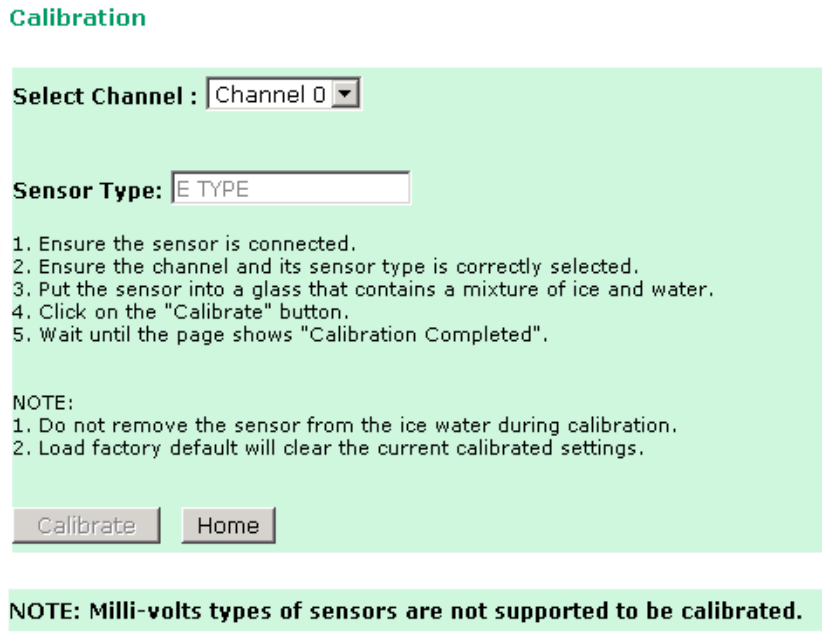


TC Channel	Sensor Type	Range	Status	Value	Min	Max
TC-00	E TYPE	-200 ~ 900℃	Enabled	--	--	--
TC-01	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-02	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-03	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-04	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-05	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-06	K TYPE	-200 ~ 1250℃	Enabled	--	--	--
TC-07	K TYPE	-200 ~ 1250℃	Enabled	--	--	--

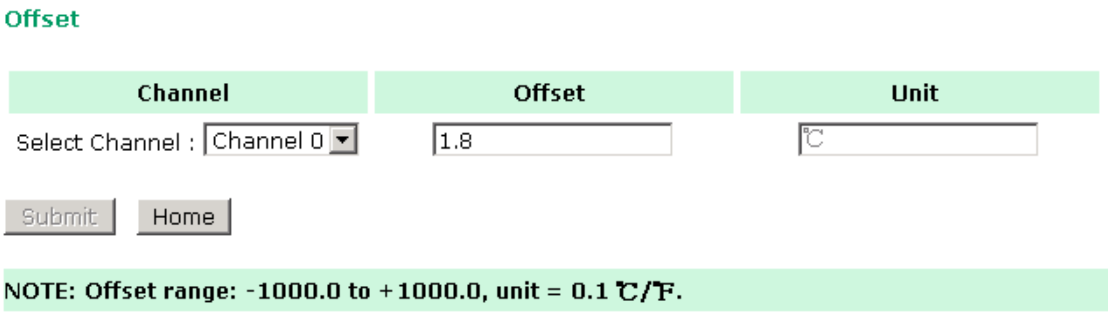
Click on a specific channel to enable or disable the TC channel. Select the **Enable TC Channel** checkbox and then select the sensor type that meets the physical attachment to the ioLogik E1200.



The ioLogik E1200 allows you to calibrate the temperature sensors. In each channel configuration section, follow the instructions and click the **Calibrate** button to start the TC sensor calibration. Each calibration requires about 30 seconds per channel.


Calibration
Select Channel : Channel 0
Sensor Type: E TYPE
1. Ensure the sensor is connected.
2. Ensure the channel and its sensor type is correctly selected.
3. Put the sensor into a glass that contains a mixture of ice and water.
4. Click on the "Calibrate" button.
5. Wait until the page shows "Calibration Completed".
NOTE:
1. Do not remove the sensor from the ice water during calibration.
2. Load factory default will clear the current calibrated settings.
Calibrate
Home
NOTE: Milli-volts types of sensors are not supported to be calibrated.

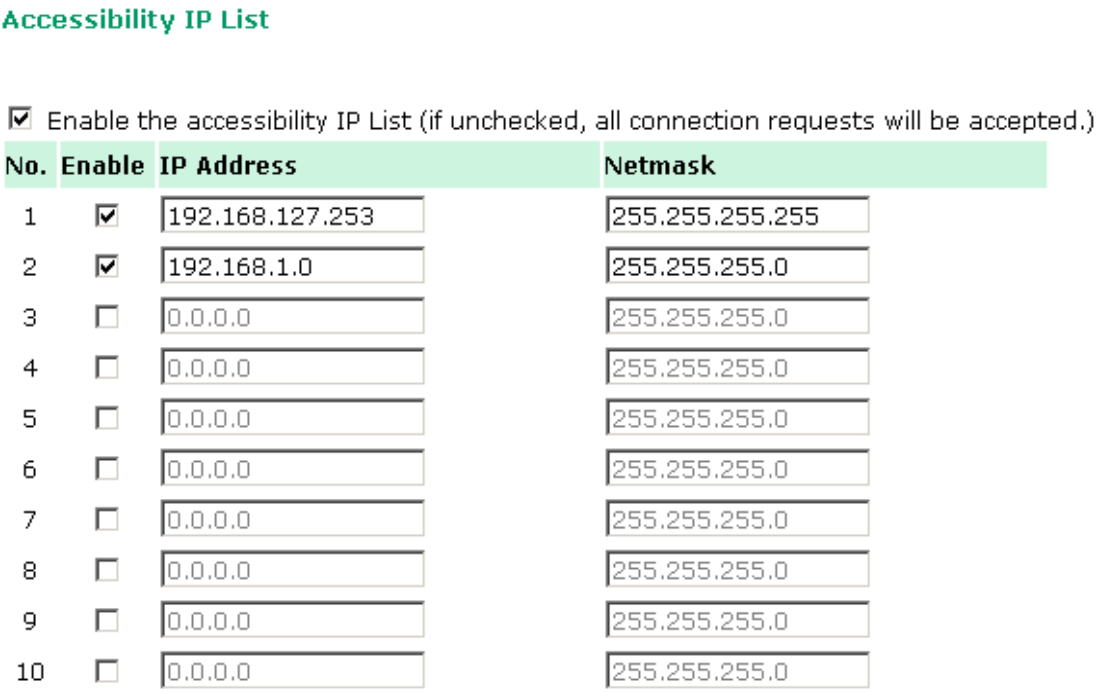
The ioLogik E1200 allows you to manually adjust the current temperature reading. In each channel configuration section, select the channel, apply the offset value, and click the **Submit** button.



System Management

Accessibility IP List

You can control network access to the ioLogik E1200 from the **Accessibility IP List** page by enabling access only from specific IP addresses. When the **Enable the accessibility IP list** checkbox is enabled, a host's IP address must be provided and enabled in the list in order to gain access to the ioLogik E1200.



Enable access for a range of IP addresses by specifying the IP address and netmask, as follows:

To allow access for a specific IP address

Enter the IP address in the **IP Address** field and 255.255.255.255 in the **Netmask** field.

To allow access for hosts on a specific subnet

Enter 0 as the last digit in both the **IP Address** field and **Netmask** field (e.g., 192.168.1.0 and 255.255.255.0).

To allow unrestricted access

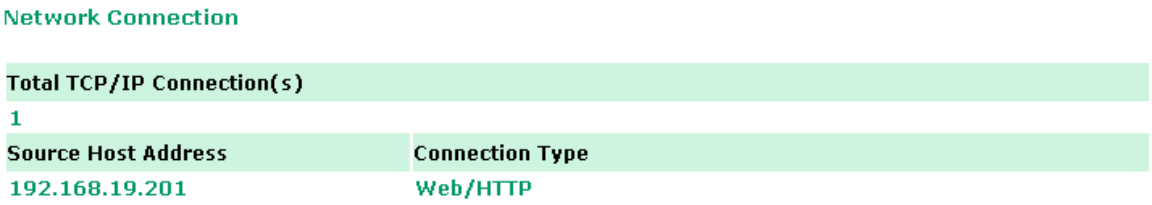
Deselect the **Enable the accessible IP list** option.

Refer to the following table for additional configuration examples.

Allowed Hosts	IP Address/Netmask
Any host	Disable
192.168.1.120	192.168.1.120 / 255.255.255.255
192.168.1.1 to 192.168.1.254	192.168.1.0 / 255.255.255.0
192.168.0.1 to 192.168.255.254	192.168.0.0 / 255.255.0.0
192.168.1.1 to 192.168.1.126	192.168.1.0 / 255.255.255.128
192.168.1.129 to 192.168.1.254	192.168.1.128 / 255.255.255.128

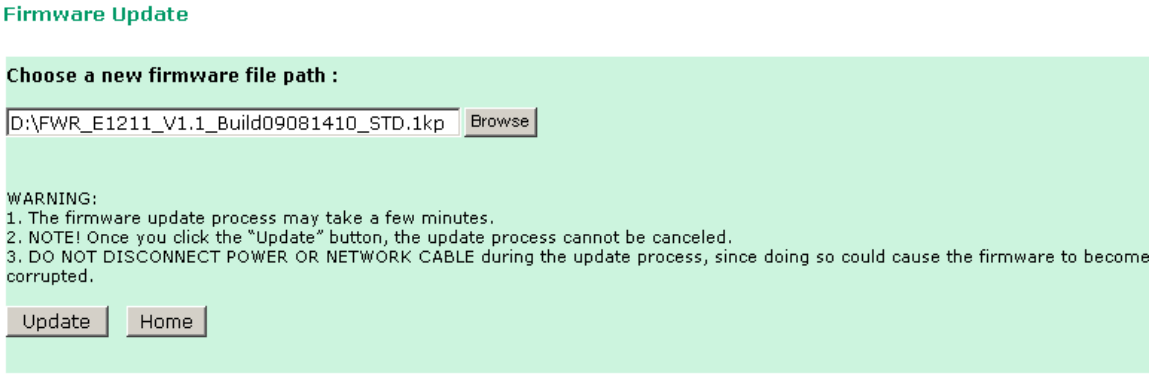
Network Connection

TCP connections from other hosts appear on the Network Connection page. This information can assist you with managing your devices.



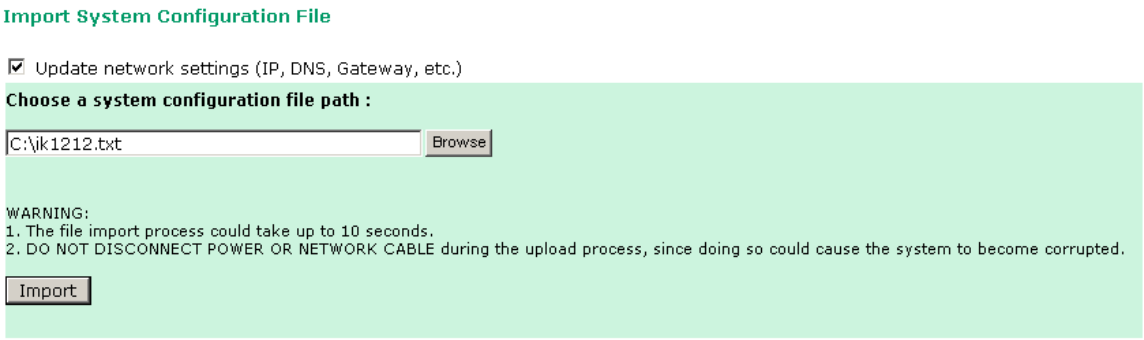
Firmware Update

Load new or updated firmware onto the ioLogik from the Firmware Update page.


Firmware Update
Choose a new firmware file path :
D:\FWR_E1211_V1.1_Build09081410_STD.1kp
Browse
WARNING:
1. The firmware update process may take a few minutes.
2. NOTE! Once you click the "Update" button, the update process cannot be canceled.
3. DO NOT DISCONNECT POWER OR NETWORK CABLE during the update process, since doing so could cause the firmware to become corrupted.
Update
Home

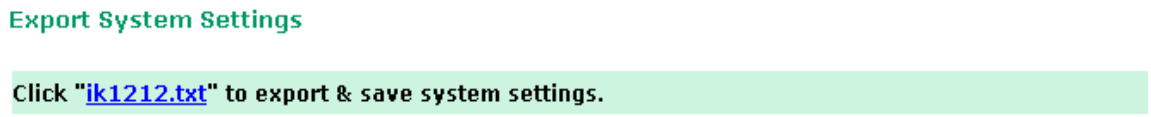
Import System Configuration Settings

Import a configuration into the ioLogik server from the Import System Config page. This function can be used to duplicate settings between ioLogik servers. You will be prompted for the location of the configuration file (i.e., "ik1212.txt").


Import System Configuration File
Update network settings (IP, DNS, Gateway, etc.)
Choose a system configuration file path :
C:\ik1212.txt
Browse
WARNING:
1. The file import process could take up to 10 seconds.
2. DO NOT DISCONNECT POWER OR NETWORK CABLE during the upload process, since doing so could cause the system to become corrupted.
Import

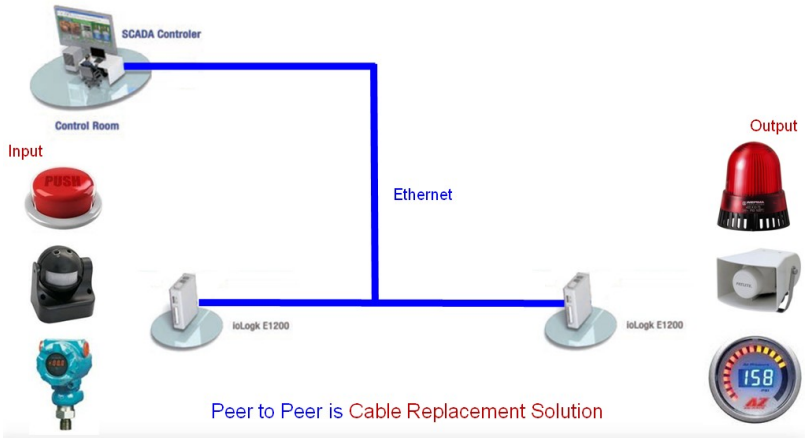
Export System Settings

On the **Export System Settings** page, you can export a copy of the ioLogik's configuration file for backup or import into another ioLogik server.



Peer-to-Peer Networking

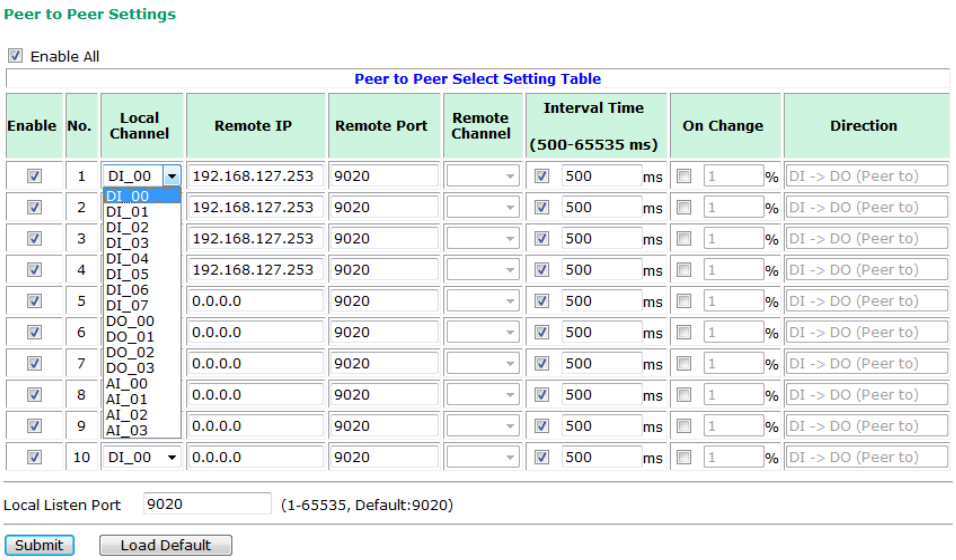
In some remote automation implementations, the control room and field sensors may be spread far apart from each other, often with only a single remote I/O module to collect data from all the sensors. Peer-to-peer communication has little or no limitation as it replaces cable by integrating multiple I/O signals over a single network cable to transmit input-to-output controls without the aid of PLCs or controllers. Featuring peer-to-peer communications and support for channel-to-channel mapping, the ioLogik E1200 allows simultaneous multiple target transmissions. In addition, the ioLogik E1200 supports up to 16 channels for transmission over Ethernet (based on an emitter and receiver I/O pair).



Peer-to-Peer Settings (1-50)

The ioLogik E1200 supports up to 50 peer-to-peer mapping rules. You can configure the channel settings 10 at a time. To enable the rules, either select the **Enable All** box to enable all 10 channels, or select the **Enable** box individually for each rule. The **Local Channel** drop-down menu allows you to specify the channel of the ioLogik E1200 to configure. Type the IP address and port number of a remote ioLogik E1200 in the **Remote IP** and **Remote Ports** fields, respectively. The **Remote Channel** field is for you to select input channels of the remote ioLogik E1200 when you select output channels in the **Local Channel** field. Set the **Interval Time** and **On change** percentage on the local ioLogik E1200 that will trigger the transmission of a mapping signal to the remote ioLogik E1200. The default local listen port number is 9020; this value can be set from 1 to 65535.

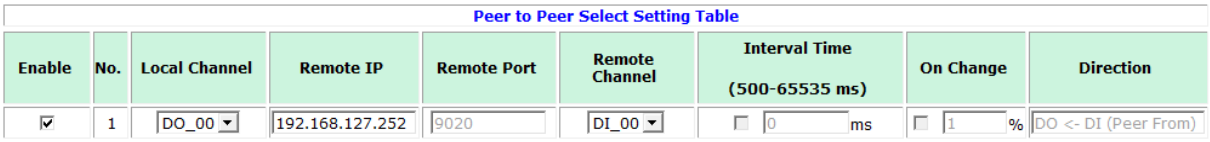
NOTE If you select a DI or AI channel in the Local Channel field, the Remote Channel field will be disabled. You need to configure the DO or AO channel on the remote ioLogik E1200.



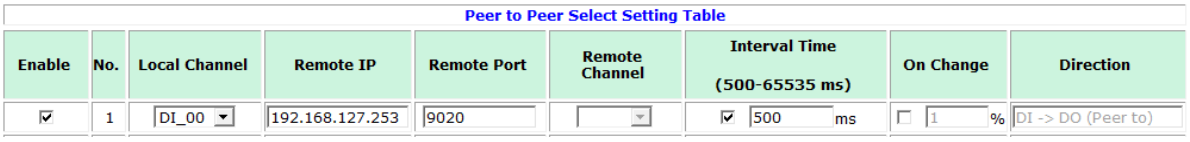
Sample Peer-to-Peer Configuration

The following is an example of configuring DO (Server IP: 192.168.127.253) to DI (Client IP: 192.168.127.252) peer-to-peer functionality with two ioLogik E1200 devices.

Server Settings:



Client Settings:

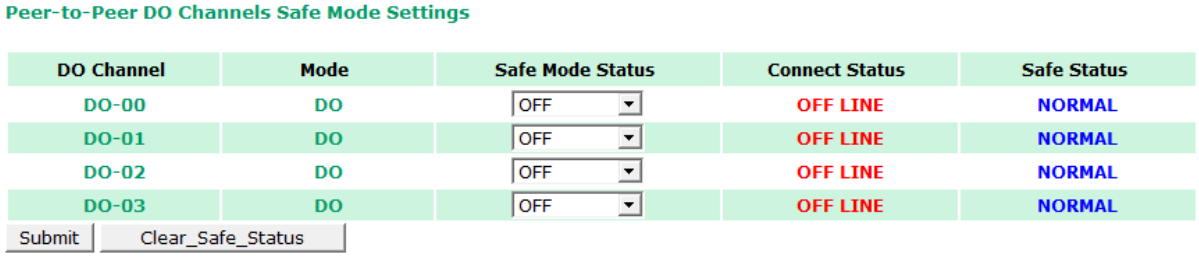


NOTE Refer to the table below for maximum number of rules supported at different signal frequencies.

	1 Hz	2 Hz	4 Hz	10 Hz	20 Hz
1 rule	✓	✓	✓	✓	✓
10 rules	✓	✓	✓		
20 rules	✓	✓	✓		
30 rules	✓	✓			
40 rules	✓	✓			
50 rules	✓				

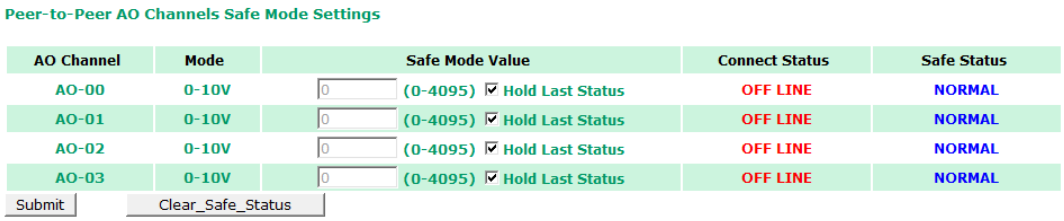
DO Safe Mode Settings

When a peer-to-peer rule on a local DO channel is not valid, the local DO channel will enter Safe Mode. You can select **Hold Last**, **ON**, or **OFF** from the **Safe Mode Status** dropdown menu for each DO channel.



AO Safe Mode Settings

When a peer-to-peer rule of the local AO channel is not valid, the local AO channel will enter Safe Mode. You can either set the AO channel's Safe Mode Value from 0–4095, or enable Hold Last Status during Safe Mode by selecting the checkbox as shown in the following figure:


Peer-to-Peer AO Channels Safe Mode Settings
AO Channel
Mode
Safe Mode Value
Connect Status
Safe Status
AO-00 0-10V 0 (0-4095) Hold Last Status OFF LINE NORMAL
AO-01 0-10V 0 (0-4095) Hold Last Status OFF LINE NORMAL
AO-02 0-10V 0 (0-4095) Hold Last Status OFF LINE NORMAL
AO-03 0-10V 0 (0-4095) Hold Last Status OFF LINE NORMAL
Submit
Clear_Safe_Status

SNMP

The ioLogik E1200 series remote I/O supports SNMPv1 and SNMPv2c for monitoring network I/O devices with SNMP network management software, which is useful for building automation and telecommunications applications.

SNMP Trap

The ioLogik E1200 series remote I/O provides standard SNMP traps and private SNMP traps for I/O devices.

Standard Trap

The ioLogik E1200 series remote I/O provides the following standard SNMP traps:

Trigger Type	Description
coldStart	Sends SNMP trap when the agent reinitializes. *Restart the measurement epochs because configuration data or MIB variables may have changed.
warmStart	Sends SNMP trap when the /etc/snmpd.conf file is reread and the agent reinitializes. *Do NOT restart the measurement epochs because configuration data or MIB variable values have not changed. The configuration information in the /etc/snmpd.conf file is for agent configurations that do not affect SNMP manager databases.

Private Trap

The ioLogik E1200 series remote I/O provides the following private trap triggers:

Trigger Type	Description
DI-change status	Sends SNMP trap when DI status changes.
DO-change status	Sends SNMP trap when DI status changes.
Relay-change status	Sends SNMP trap when Relay status changes.
AI-burn-out	Sends SNMP trap when AI reaches preset burn-out value.
AI-trigger	Sends SNMP trap when AI reaches preset value.
AO-trigger	Sends SNMP trap when AO reaches preset value.
RTD-trigger	Sends SNMP trap when RTD reaches preset value.
TC-trigger	Sends SNMP trap when TC reaches preset value.

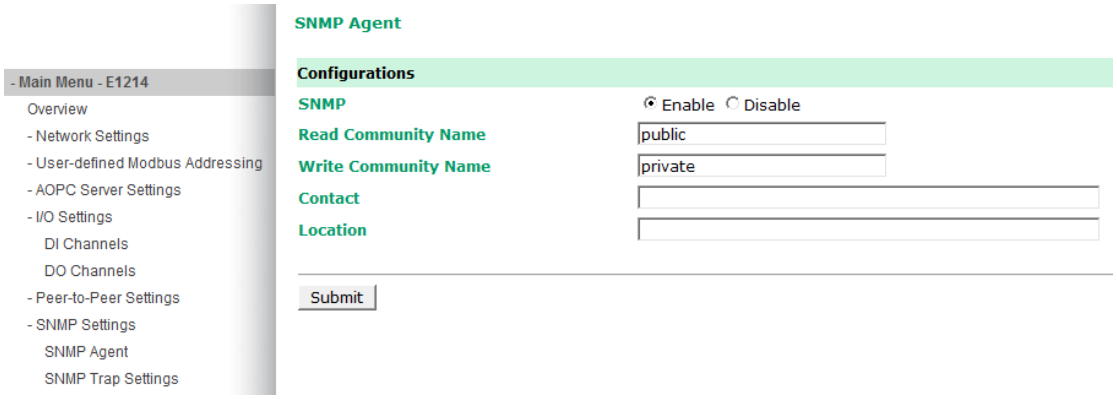
NOTE You will need to load the correct MIB file to use Moxa's private SNMP traps.

Using SNMP

Moxa has provided the ioLogik E1200 MIB file for easier analysis of SNMP data.

SNMP Agent

You can enable SNMP under **SNMP Settings → SNMP Agent**. SNMP is used to monitor the network and I/O devices with SNMP network management software. Use these fields to enable SNMP and set the read and write community names, contact, and location for SNMPv1 and SNMPv2c.

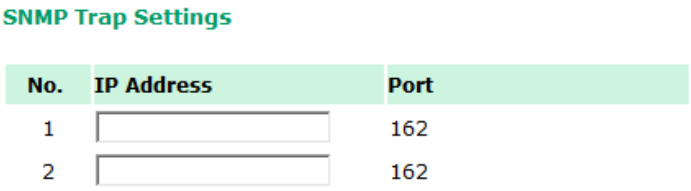


SNMP Trap Settings

On the SNMP Trap Settings page, you can enable SNMP and configure SNMP traps.

SNMP Trap Server

The SNMP Trap function sends an SNMP trap to up to two IP destinations. If both IP addresses are configured, it will send to both addresses simultaneously when an SNMP trap is triggered.



SNMP Trap

Enable **Channel SNMP Trap** by clicking on the SNMP Trap box, and then select the channel you would like to enable.

DI Channel	Mode	SNMP Trap	Specific ID(1-20)	Trigger
DI-00	DI	☐	1	On Change
DI-01	DI	☐	1	On Change
DI-02	DI	☐	1	On Change
DI-03	DI	☐	1	On Change
--	--	☐	1	--
--	--	☐	1	--
--	--	☐	1	--
--	--	☐	1	--

NOTE SNMP is not supported while using the peer-to-peer function.

Specific ID

The Specific ID (trap number) can be any number between 1 and 20. (You may need to consult with your network administrator to determine how the trap numbers are used and defined on the network.)

Digital Input / Counter Trap Settings

For a digital input, the trap is triggered by the **On Change** function. When there is a change in the DI channel, the SNMP will send a trap to the SNMP Server.

DI Channel	Mode	SNMP Trap	Specific ID(1-20)	Trigger
DI-00	Counter	☐	1	--
DI-01	DI	☑	1	On Change
DI-02	Counter	☐	1	--
DI-03	DI	☑	1	On Change

NOTE SNMP Trap does not support the counter trap function.

Digital Output / Pulse Output Trap Settings

For digital output, the trap is triggered by the **On Change** function. When there is a change in the DO channel, the SNMP will send a trap to the SNMP Server.

DO Channel	Mode	SNMP Trap	Specific ID(1-20)	Trigger
DO-00	DO	☑	1	On Change
DO-01	Pulse Output	☐	1	--
DO-02	DO	☑	1	On Change
DO-03	Pulse Output	☐	1	--

NOTE SNMP Trap does not support the Pulse Output trap function.

Analog Input Trap Settings

For Analog Input, the trap is triggered when an analog input meets the preset conditions for Trigger, Value, and Hysteresis. Refer to the AI Channel settings in Chapter 3 to set the mode.

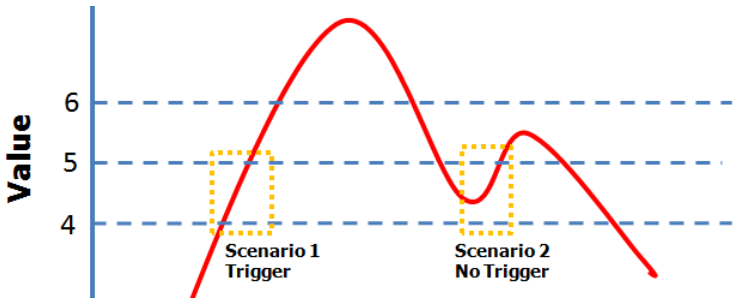
AI Channel	Mode	SNMP Trap	Specific ID(1-20)	Trigger	Value	Hysteresis
AI-00	0-10V	☑	1	Greater	0.000	0.000
AI-00	0-10V	☑	1	Smaller	0.000	0.000
AI-01	0-10V	☑	1	Greater	0.000	0.000
AI-01	0-10V	☑	1	Smaller	0.000	0.000
AI-02	0-10V	☑	1	Greater	0.000	0.000
AI-02	0-10V	☑	1	Smaller	0.000	0.000
AI-03	0-10V	☑	1	Greater	0.000	0.000
AI-03	0-10V	☑	1	Smaller	0.000	0.000

Example:

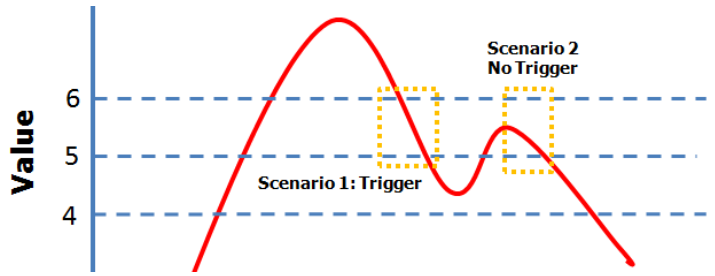
For illustration purposes, consider the following example where we set the AI-00 channel's trigger value to be greater than 5 with a Hysteresis of 1 and also smaller than 5 with a Hysteresis of 1.

AI Channel	Mode	SNMP Trap	Specific ID(1-20)	Trigger	Value	Hysteresis
AI-00	0-10V	☑	1	Greater	5	1
AI-00	0-10V	☑	1	Smaller	5	1

When Trigger = Greater, Value = 5, and Hysteresis = 1, the SNMP trap will only be triggered if the analog signal fluctuates from 4 to 5, as depicted in Scenario 1 below. However, if we change the settings to Value = 5 and Hysteresis = 2, the SNMP trap will only be triggered if the analog signal fluctuates from 3 to 5.



When Trigger = Smaller, Value = 5, and Hysteresis = 1, the SNMP trap will only be triggered if the analog signal fluctuates from 6 to 5, as depicted in Scenario 1 below. However, if we change the settings to Value = 5 and Hysteresis = 2, the SNMP trap will only be triggered if the analog signal fluctuates from 7 to 5.



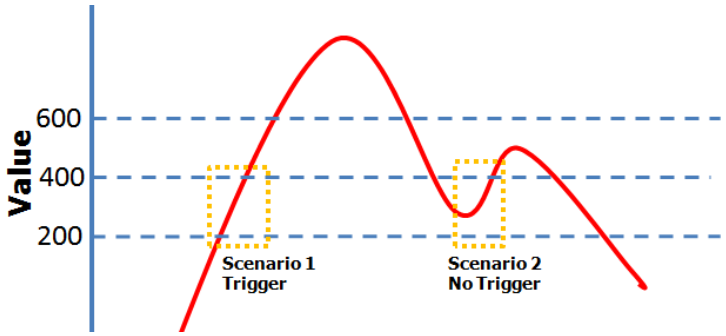
RTD Input Trap Settings

For RTD Input, the trap is triggered when the RTD input meets the preset conditions for Trigger, Value, and Hysteresis. Refer to RTD Channel settings to set the Mode and Range.

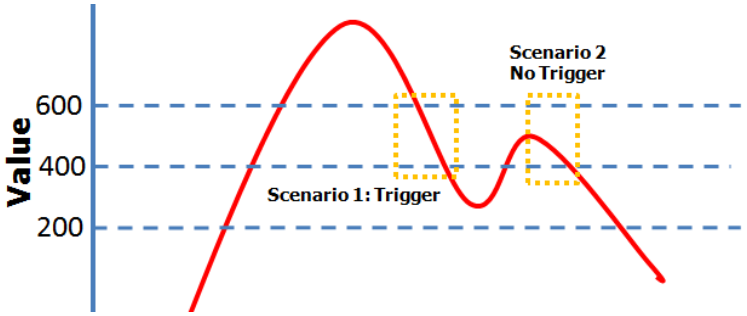
RTD Channel	Mode	Range	SNMP Trap	Specific ID(1-20)	Trigger	Value	Hysteresis
RTD-00	PT 100	-328 ~ 1562(℉)	☑	1	Greater	0	0
RTD-00	PT 100	-328 ~ 1562(℉)	☑	1	Smaller	0	0

Example:

When Trigger = Greater, Value = 400 and Hysteresis = 200, the SNMP trap will only be triggered if the RTD signal fluctuates from 200 to 400, as depicted in Scenario 1 below. However, if we change the settings to Value = 400 and Hysteresis = 400, the SNMP trap will only be triggered if the RTD signal fluctuates from 0 to 400.



When Trigger = Smaller, Value = 400, and Hysteresis = 200, the SNMP trap will only be triggered if the RTD signal fluctuates from 600 to 400, as depicted in Scenario 1 below. However, if we change the settings to Value = 400 and Hysteresis = 400, the SNMP trap will only be triggered if the RTD signal fluctuates from 800 to 400.



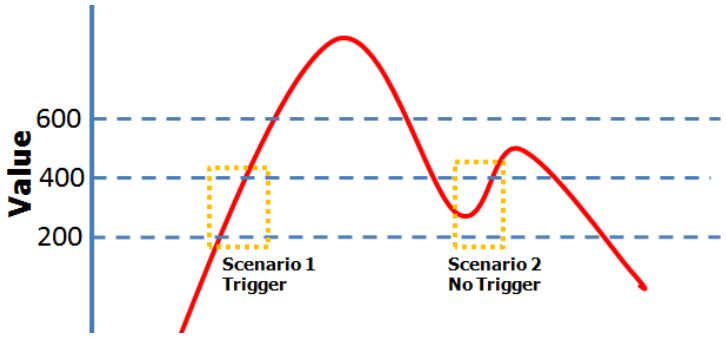
TC Input Trap Settings

For TC Input, the trap is triggered when the TC input meets the preset conditions for Trigger, Value, and Hysteresis. Refer to the TC Channel settings to set the Mode and the Range.

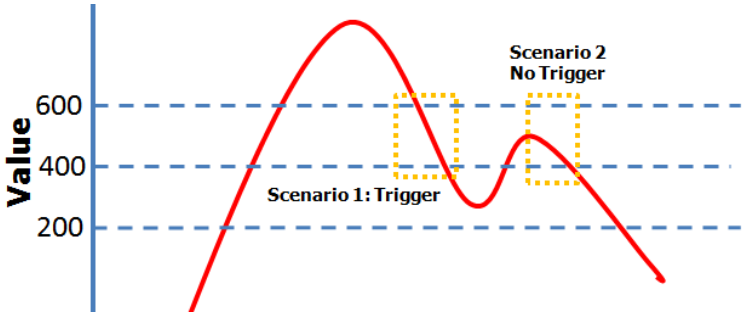
TC Channel	Mode	Range	SNMP Trap	Specific ID(1-20)	Trigger	Value	Hysteresis
TC-00	R TYPE	-58 ~ 2912(℉)	☑	1	Greater	0	0
TC-00	R TYPE	-58 ~ 2912(℉)	☑	1	Smaller	0	0

Example:

When Trigger = Greater, Value = 400, and Hysteresis = 200, the SNMP trap will only be triggered if the TC signal fluctuates from 200 to 400, like in scenario 1. If we change to Value = 400 and Hysteresis = 400, the SNMP trap will only be triggered if the TC signal fluctuates from 0 to 400.

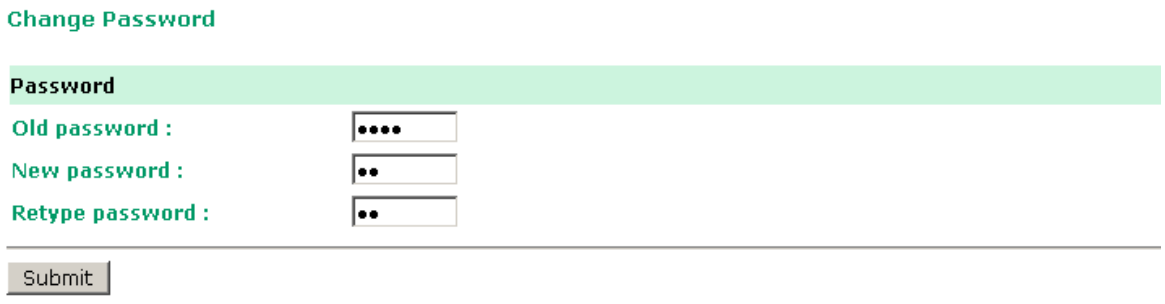


When Trigger = Smaller, Value = 400, and Hysteresis = 200, the SNMP trap will only be triggered if the TC signal fluctuates from 600 to 400, like in scenario 1. If we change to Value = 400 and Hysteresis = 400, the SNMP trap will only be triggered if the TC signal fluctuates from 800 to 400.



Change Password

For all changes to the ioLogik E1200's password protection settings, you will first need to enter the old password. Leave this blank if you are setting up password protection for the first time. To set up a new password or change the existing password, enter your desired password under both **New password** and **Confirm password**. To remove password protection, leave the **New password** and **Confirm password** fields blank.



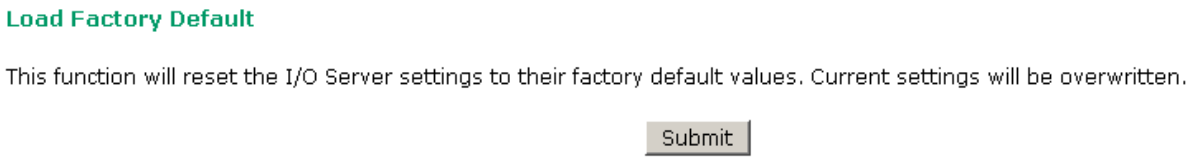
ATTENTION

If you forget the password, the ONLY way to configure the ioLogik E1200 is by using the Reset button to load the factory default settings.

Before you set a password for the first time, it is a good idea to export the configuration file when you have finished setting up your ioLogik E1200. Your configuration can then be easily imported back into the ioLogik E1200 if you need to reset the ioLogik E1200 due to a forgotten password or for other reasons.

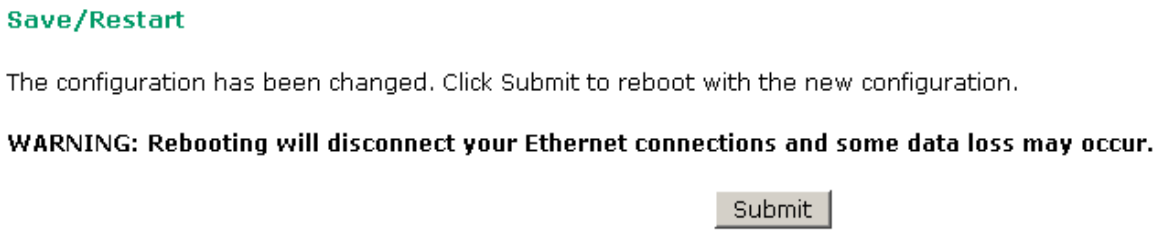
Load Factory Defaults

This function will reset all of the ioLogik E1200's settings to the factory default values. All previous settings, including the console password, will be lost.


Load Factory Default
This function will reset the I/O Server settings to their factory default values. Current settings will be overwritten.
Submit

Save/Restart

If you change the configuration, do not forget to reboot the system.


Save/Restart
The configuration has been changed. Click Submit to reboot with the new configuration.
WARNING: Rebooting will disconnect your Ethernet connections and some data loss may occur.
Submit

4

Using ioSearch™

This chapter describes ioSearch™, which is used to search for and locate ioLogik E1200 units.

The following topics are covered in this chapter:

- **Introduction to ioSearch™**
- **ioSearch™ Main Screen**
  - Main Screen Overview
- **ioSearch™ Setup**
  - System
  - Sort
  - Quick Links
- **Main Function**
  - Locate
  - Firmware Upgrade
  - Unlock
  - Import
  - Export
  - Change IP Address
  - Batch TCP/IP Configuration on Multiple Devices
  - Restart System
  - Reset to Default
  - Mass Deployment (Import)
  - Mass Deployment (Export)

Introduction to ioSearch™

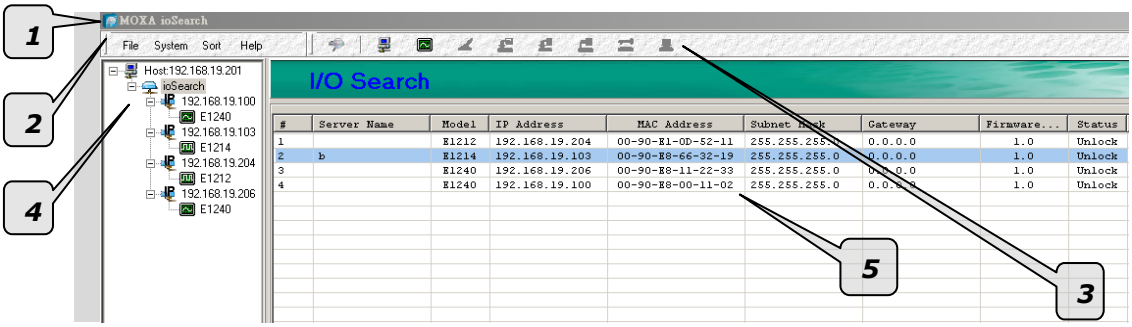
Moxa's ioSearch™ utility is software tool that searches for ioLogik E1200 units on a physical network. The following functions are supported by the ioSearch™ utility:

- Search for and locate ioLogik E1200 units
- Configure IP addresses
- Upgrade firmware for multiple ioLogik E1200 units (same model)
- Export configuration files from multiple ioLogik E1200 units
- Import configuration files from multiple ioLogik E1200 units (same model)
- Reset to default for multiple ioLogik E1200 units

ioSearch™ Main Screen

Main Screen Overview

The main screen displays the results of a broadcast search for ioLogik E1200 units.



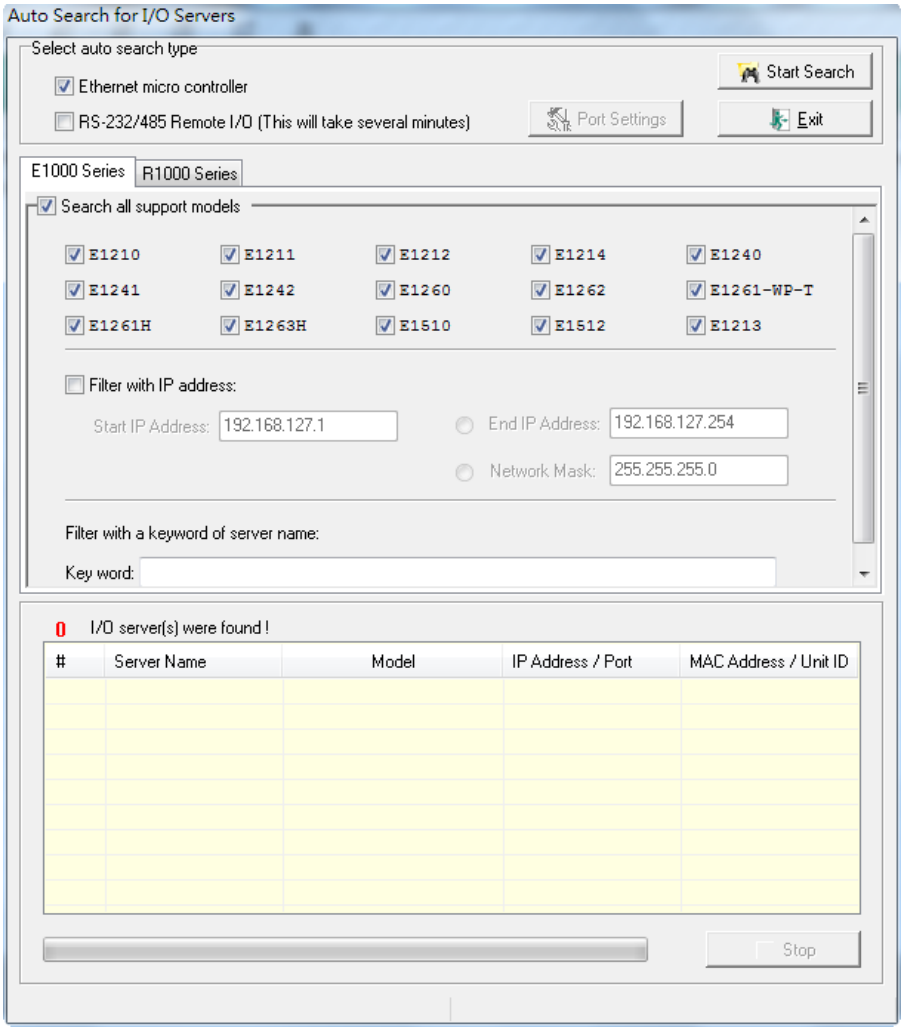
ioSearch™ Main Screen
1. Title
2. Menu bar
3. Quick link
4. Navigation panel
5. Main window

ioSearch™ Setup

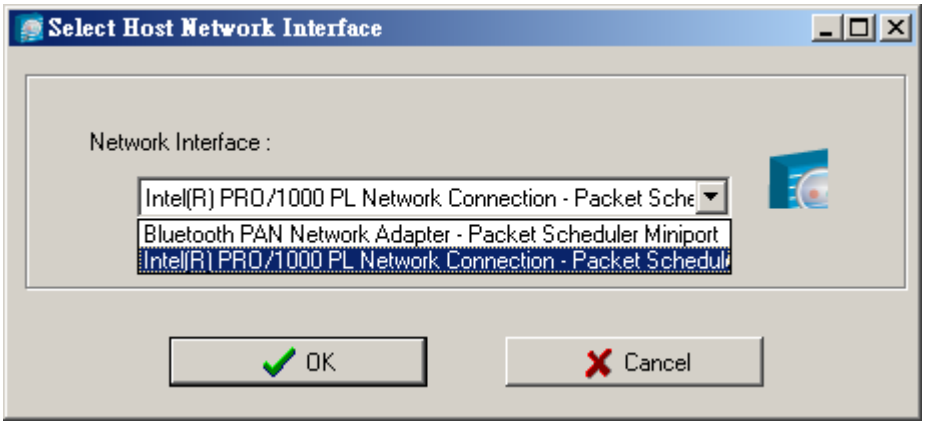
System

Several operations are possible from the **System** menu.

Auto Scan Active Ethernet I/O Servers will search for ioLogik servers on the network. When connecting for the first time or recovering from a network disconnection, you can use this command to find I/O servers that are on the network.

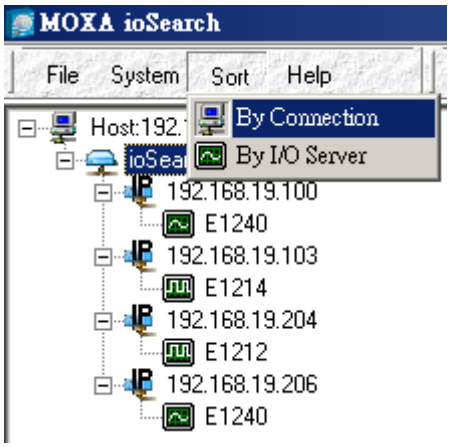


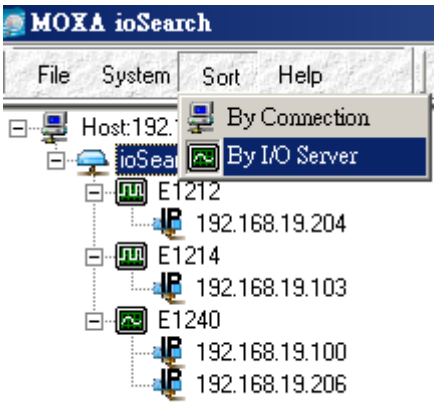
Network Interface allows you to select a network to use, if the PC has multiple network adaptors installed.


Select Host Network Interface
Network Interface :
Intel(R) PRO/1000 PL Network Connection - Packet Sche
Bluetooth PAN Network Adapter - Packet Scheduler Miniport
Intel(R) PRO/1000 PL Network Connection - Packet Schedul
OK
Cancel

Sort

The **Sort** menu allows the server list in the navigation panel to be sorted by ioLogik connection and server (model).





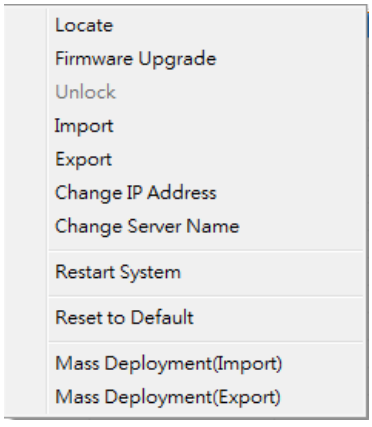
Quick Links

Quick links are provided to search for I/O servers on the network and sort the server list.

1	Automatically search the local network
2	Sort by ioLogik E1200's IP address (connection)
3	Sort by ioLogik E1200 model
4	Locate an ioLogik E1200
5	Upgrade Firmware
6	Import settings
7	Export settings
8	Unlock an ioLogik E1200 which is password protected
9	Change IP Address of an ioLogik E1200

Main Function

Right click on a particular ioLogik E1200 to view the ioSearch™ function menu.



Locate

The locate function helps users find a dedicated ioLogik on the network. When this function is triggered, the ready LED on the selected unit will start to blink indicating its location.

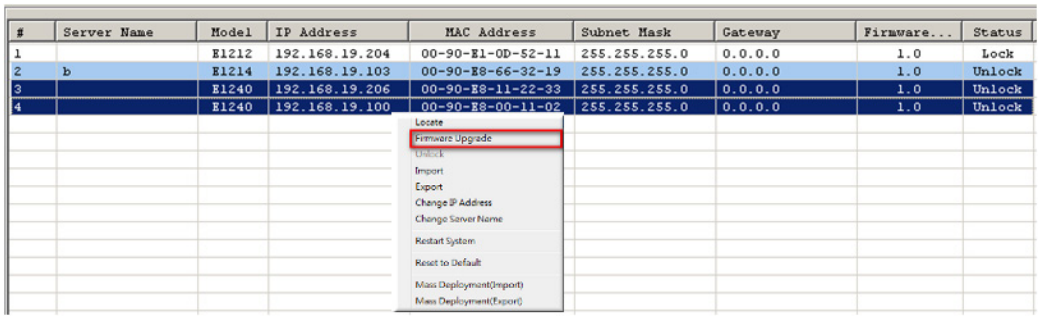
Locate Server
Server Name Model IP Address MAC Address Firmware Ver. Status
1 E1240 192.168.19.100 00-90-E8-00-11-02 1.0 Unlock
NOTE: The device LED will blink until the stop button is pressed.
Stop

Firmware Upgrade

The ioLogik E1200 supports a remote firmware upgrade function. Enter the path to the firmware file or click on the icon to browse for the file. The wizard will lead you through the process until the server is restarted.

Batch Upgrades on Multiple Devices of the Same Model

Batch firmware upgrades are possible on multiple devices of the same ioLogik model. To upgrade multiple models, press the **"Shift"** key, select **"ioLogik"**, and right click to process multiple firmware upgrades.

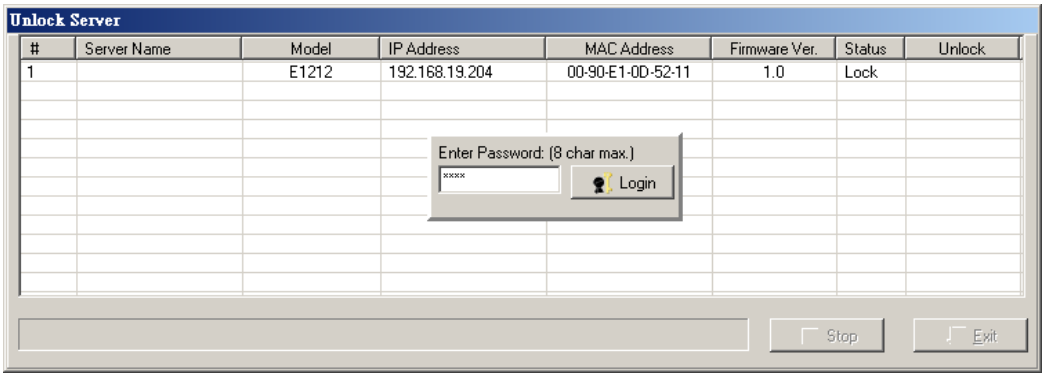

Server Name Model IP Address MAC Address Subnet Mask Gateway Firmware... Status
1 E1212 192.168.19.204 00-90-E1-0D-52-11 255.255.255.0 0.0.0.0 1.0 Lock
2 b E1214 192.168.19.103 00-90-E8-66-32-19 255.255.255.0 0.0.0.0 1.0 Unlock
3 E1240 192.168.19.206 00-90-E8-11-22-33 255.255.255.0 0.0.0.0 1.0 Unlock
4 E1240 192.168.19.100 00-90-E8-00-11-02 255.255.255.0 0.0.0.0 1.0 Unlock
Locate
Firmware Upgrade
Unlock
Import
Export
Change IP Address
Change Server Name
Restart System
Reset to Default
Mass Deployment(Import)
Mass Deployment(Export)

ATTENTION

Do not interrupt the firmware update process! An interruption in the process may result in your device becoming unrecoverable.

Unlock

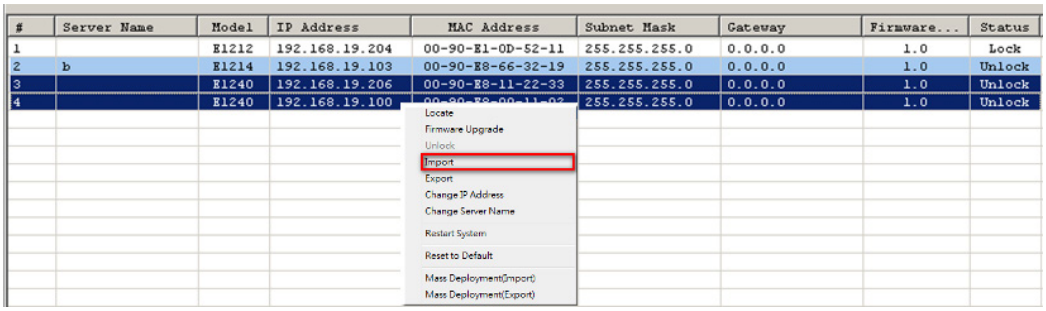
If an ioLogik E1200 is password protected, unlock the ioLogik E1200 by entering the password before using any of the functions.



Import

Select this command to reload a configuration that was exported to a text file.

Importing one configuration file to multiple ioLogik E1200 units (same model) is allowed. To do this, press the **"Shift"** key, select **"ioLogik"**, and then right click.



#	Server Name	Model	IP Address	MAC Address	Subnet Mask	Gateway	Firmware...	Status
1		E1212	192.168.19.204	00-90-E1-0D-52-11	255.255.255.0	0.0.0.0	1.0	Lock
2	b	E1214	192.168.19.103	00-90-E8-66-32-19	255.255.255.0	0.0.0.0	1.0	Unlock
3		E1240	192.168.19.206	00-90-E8-11-22-33	255.255.255.0	0.0.0.0	1.0	Unlock
4		E1240	192.168.19.100		255.255.255.0	0.0.0.0	1.0	Unlock

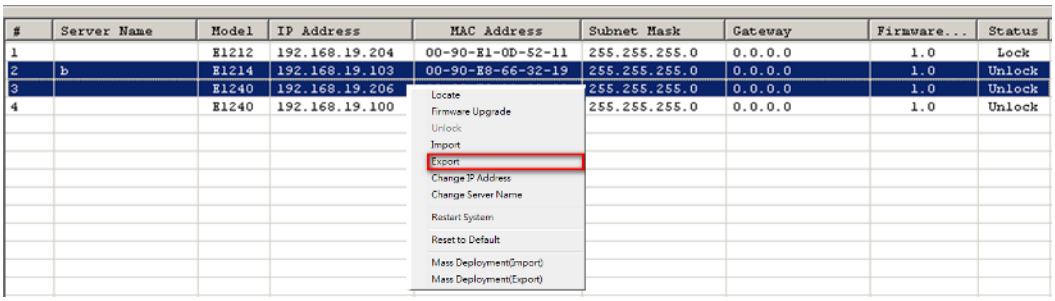
Export

The export function is used to export the current configuration file of an ioLogik E1200. The export file format will be **ik12xx.txt** where "xx" represents the model type of the ioLogik E1200.

Exporting multiple files for different models of ioLogik E1200 is allowed. The file format is **ik12xx_MAC Address.txt**, where the xx represents the model types of the ioLogik E1200.

e.g., ik1214_00-90-E8-66-32-19.txt

To export multiple configuration files, select the ioLogik and right click to process this function.

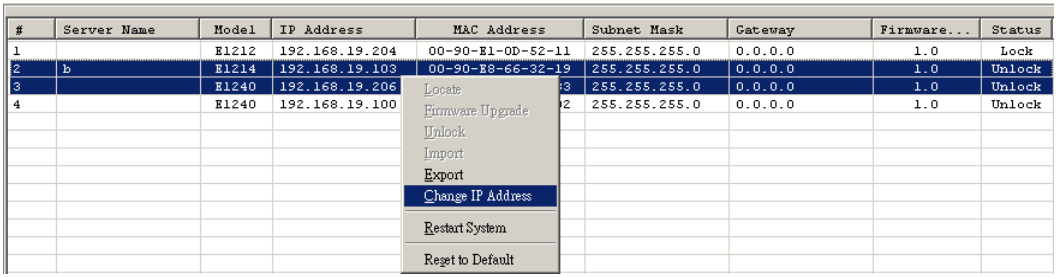


#	Server Name	Model	IP Address	MAC Address	Subnet Mask	Gateway	Firmware...	Status
1		E1212	192.168.19.204	00-90-E1-0D-52-11	255.255.255.0	0.0.0.0	1.0	Lock
2	b	E1214	192.168.19.103	00-90-E8-66-32-19	255.255.255.0	0.0.0.0	1.0	Unlock
3		E1240	192.168.19.206		255.255.255.0	0.0.0.0	1.0	Unlock
4		E1240	192.168.19.100		255.255.255.0	0.0.0.0	1.0	Unlock

Change IP Address

The Change IP Address function allows you to directly modify the IP address for one or multiple ioLogik E1200 series devices, and is especially useful for first time installation.

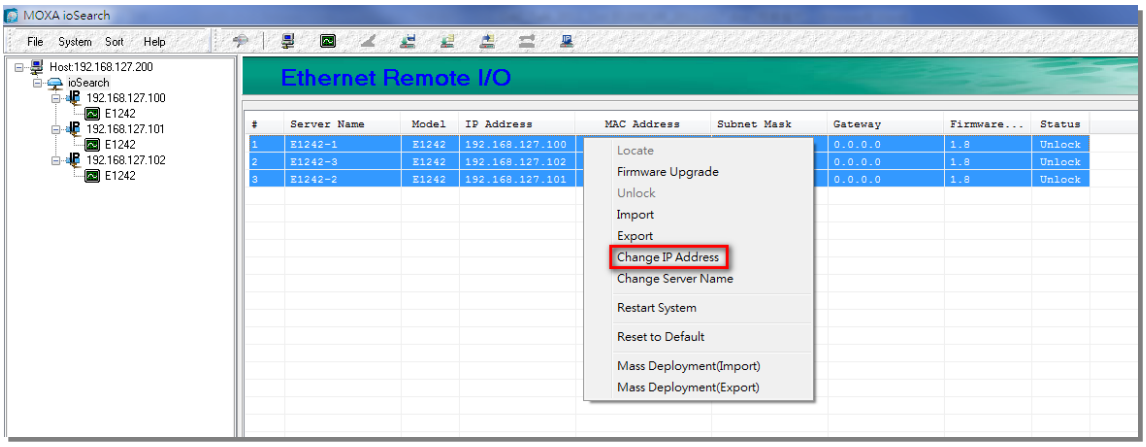
First, select the ioLogik E1200 device(s) you wish to modify. Then, right-click on the device(s) and select "Change IP Address" from the drop-down menu to open the Change IP Address window. After changing the IP address, click "Set" to complete setup, and search the network again to reveal the modified IP addresses.



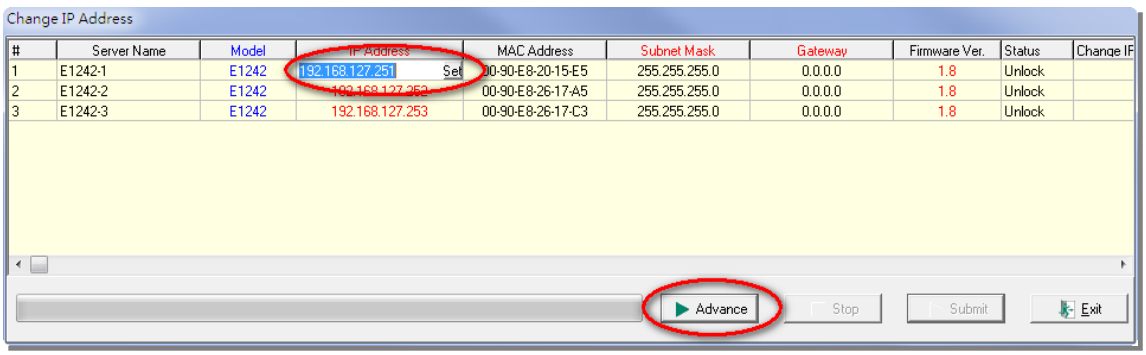
Change IP Address
Server Name Model IP Address MAC Address Firmware Ver. Status Change IP
1 b E1214 192.168.19.103 00-90-E8-66-32-19 1.0 Unlock
2 E1240 192.168.19.206 Set 00-90-E8-11-22-33 1.0 Unlock

Batch TCP/IP Configuration on Multiple Devices

Users can batch modify IP addresses, subnet masks, and gateways for devices of the same model from a single window while submitting the changes at one time. First, select several devices of the same model, click the right mouse button, and then click **"Change IP Address"** in the pop-up menu to launch a new window.



The following screenshot shows the window used to modify IP addresses, subnet masks, and gateways. Users can modify each item and click **"Set"** to confirm the modification, or click the **"Advance"** button to automatically assign IP addresses incrementally.

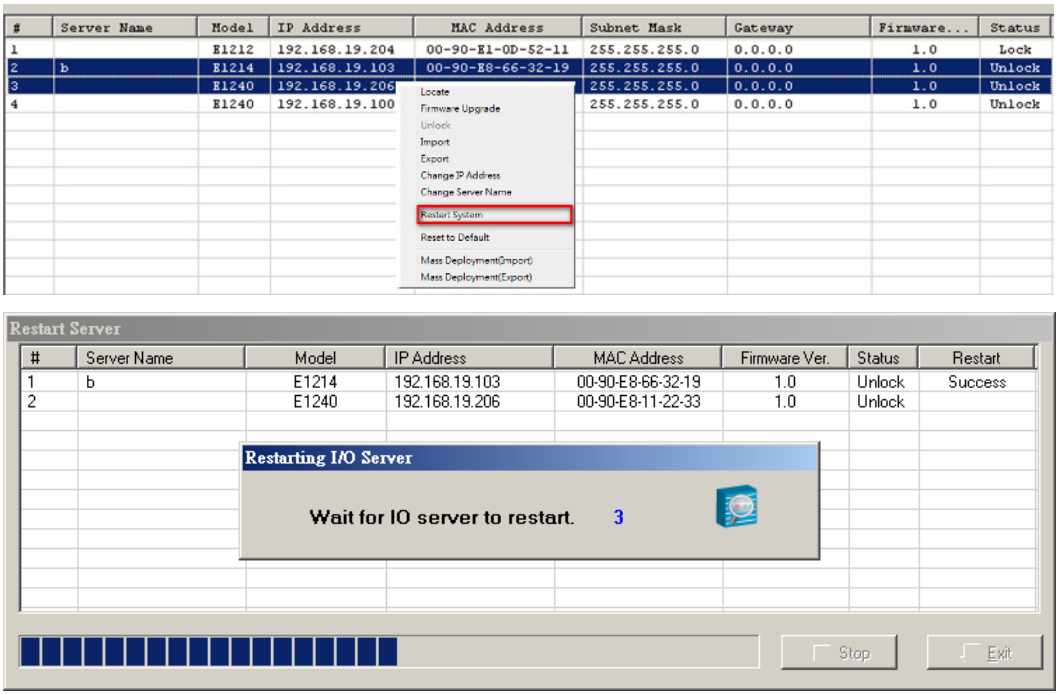

Change IP Address
Server Name Model IP Address MAC Address Subnet Mask Gateway Firmware Ver. Status Change IP
1 E1242-1 E1242 192.168.127.251 Set 00-90-E8-20-15-E5 255.255.255.0 0.0.0.0 1.8 Unlock
2 E1242-2 E1242 00-90-E8-26-17-A5 255.255.255.0 0.0.0.0 1.8 Unlock
3 E1242-3 E1242 192.168.127.253 00-90-E8-26-17-C3 255.255.255.0 0.0.0.0 1.8 Unlock
Advance
Stop
Submit
Exit

After clicking the **Advance** button, a window will pop up to allow users to use ioSearch™ to set the IP address by MAC address. ioSearch™ will automatically set sequential IP addresses on the selected devices, with the subnet mask and gateway set to the same value.

Restart System

Select this command to restart the selected ioLogik E1200.

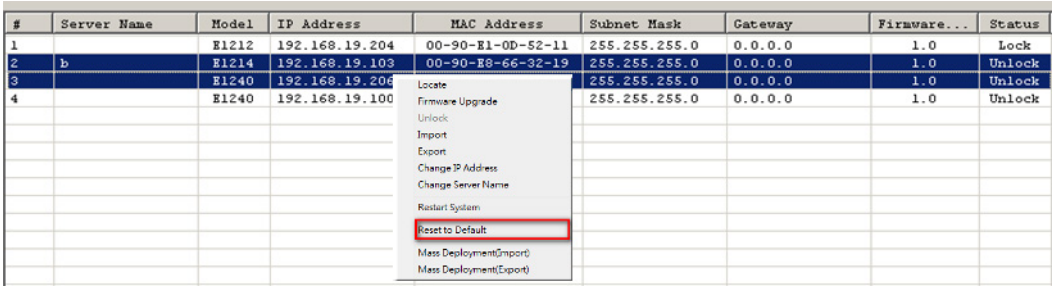
Restarting multiple ioLogik E1200 units is allowed. Select the ioLogik E1200 and right click to process this function.



Reset to Default

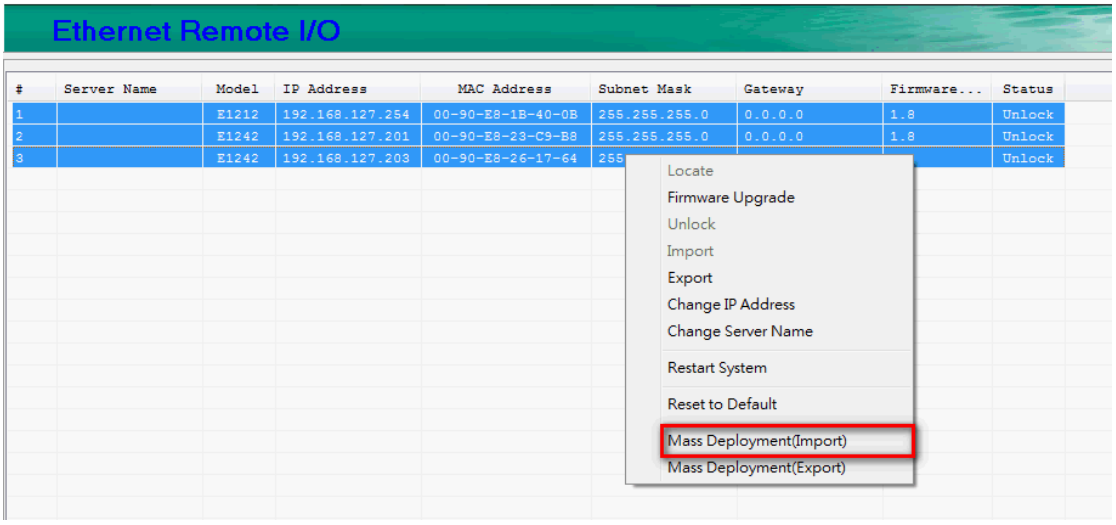
Select this function to reset all settings, including console password, to factory default values.

Resetting multiple ioLogik E1200 units to the default configuration is allowed. Select the ioLogik E1200 and right click to process this function.



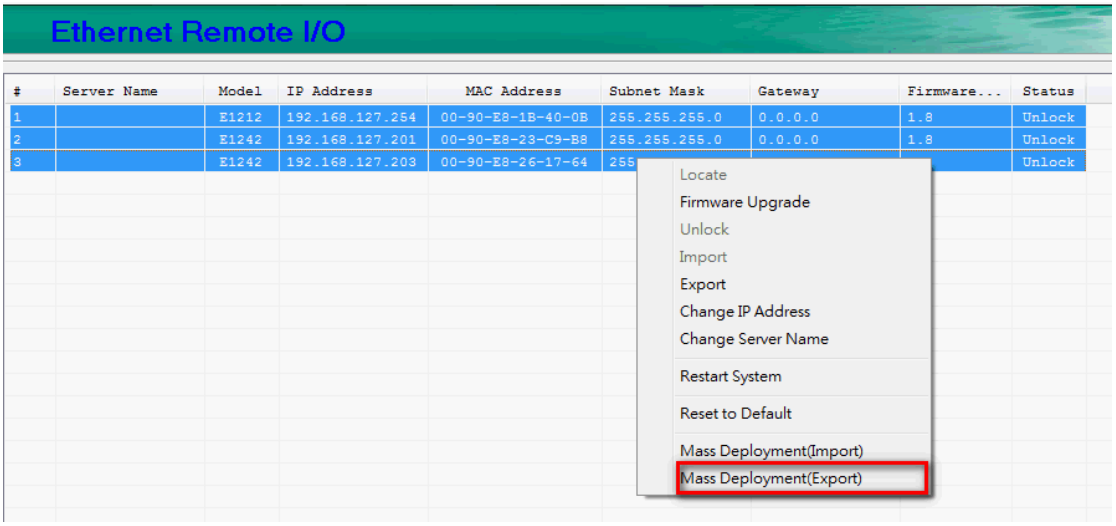
Mass Deployment (Import)

Users can import E1200 series module information via ioSearch™. Select this command to reload a configuration from an exported .CSV file.



Mass Deployment (Export)

Users can export E1200 series module information via ioSearch™. The export file format will be **E1200_Series_List**.



5

Active OPC Server

Active OPC Server is a software package provided by Moxa that operates as an OPC driver for an HMI or SCADA system. It offers seamless connection from Moxa's ioLogik series products to SCADA systems, such as Wonderware, Citect, and iFix. Active OPC Server meets the latest standard of OPC DA 3.0, which allows connections to various kinds of devices and host OPC machines.

The following topics are covered in this chapter:

- **Introduction to Active OPC Server**
  - OLE for Process Control
  - Active OPC Server—From Pull to Push
- **Features of Active OPC Server**
  - One Simple Click Creates Active Tags
  - Faster, More Accurate Data Collection than Traditional "Pull Technology"
  - Dynamic IP Assignments for Cellular RTUs
- **Active OPC Server Setup**
  - Installing Active OPC Server
  - Main Screen Overview
  - Menu Bar

Introduction to Active OPC Server

Moxa Active OPC Server is a software package operated as an OPC driver of an HMI or SCADA system. It offers seamless connection from Moxa ioLogik series products to SCADA systems, including the most popular—Wonderware, Citect, and iFix. Active OPC Server meets the latest standard of OPC DA3.0 to connect various kinds of devices and host OPC machines.

Active OPC Server System Requirements

Hardware Requirements	
CPU	Intel Pentium (Pentium 4 and above)
RAM	512 MB (1024 MB recommended)
Network Interface	10/100 Mb Ethernet
Software Requirements	
Operating System	Microsoft Windows 2000, XP or later
Editor(not necessary)	Microsoft Office 2003 (Access 2003) or later
OPC Server Specifications	
OPC Data Access	1.0a, 2.0, 2.05a, 3.0
Max. tags	256
ioLogik Support	
Product Model	ioLogik E1200 series, E2200 series, E4200, and W5300 series
Firmware version	V3.0 or above
ioAdmin version	V3.0 or above

NOTE The latest versions are Active OPC Server V1.11 and ioAdmin 3.10. Use firmware V1.3 or above for the ioLogik W5312 series, V1.5 or above for the ioLogik W5340 series, and V1.2 or above for the ioLogik W5340-HSDPA series for the following descriptions to be valid.

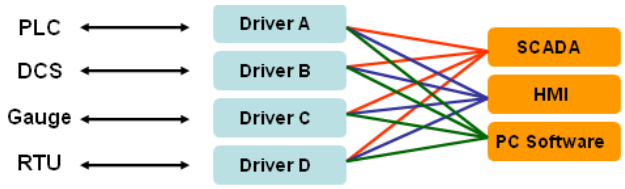
OLE for Process Control

OPC (originally OLE for process control) is an industry standard created by the leading worldwide automation hardware and software suppliers working in cooperation with Microsoft. The standard defines methods for exchanging real-time automation data between PC-based clients using Microsoft operating systems. The organization that manages this standard is the OPC Foundation.

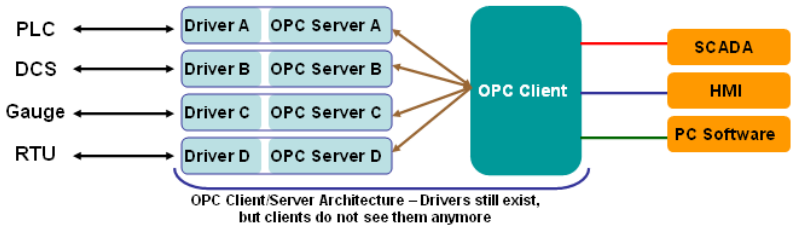
The OPC Specification is a non-proprietary technical specification that defines a set of standard interfaces based on Microsoft's OLE/COM/DCOM platform and .NET technology. The application of the OPC standard interface makes possible interoperability between automation/control applications, field systems/devices, and business/office applications.

Traditionally, software and application developers needed to write a custom interface or server/driver to exchange data with hardware field devices. OPC eliminates this requirement by defining a common, high performance interface that permits this to be done once, and then easily reused by HMI, SCADA, control, and custom applications.

Drivers must be installed several times to connect to different devices



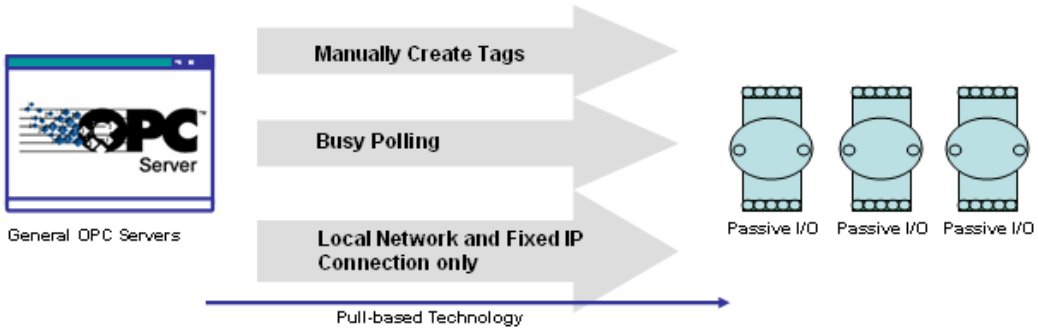
OPC Client/Server creates a common interface to connect to different devices



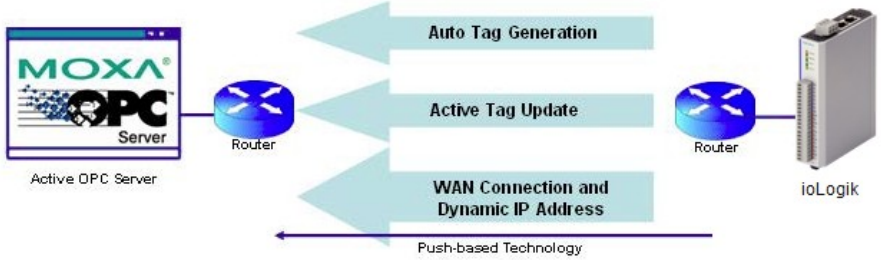
Active OPC Server—From Pull to Push

When looking up an I/O devices' Modbus table, 19 or more steps are required to create a single tag. The steps include specifying the IP address, selecting the protocols, and defining the data type. The procedure is repeated over and over again until all the devices and tags are created. It takes about 1 minute for a user with a technical background to create one tag. But what if there are 400 tags in an OPC system? Not only does it take a long time to configure such a large number of tags, it also puts a heavy load on the CPU.

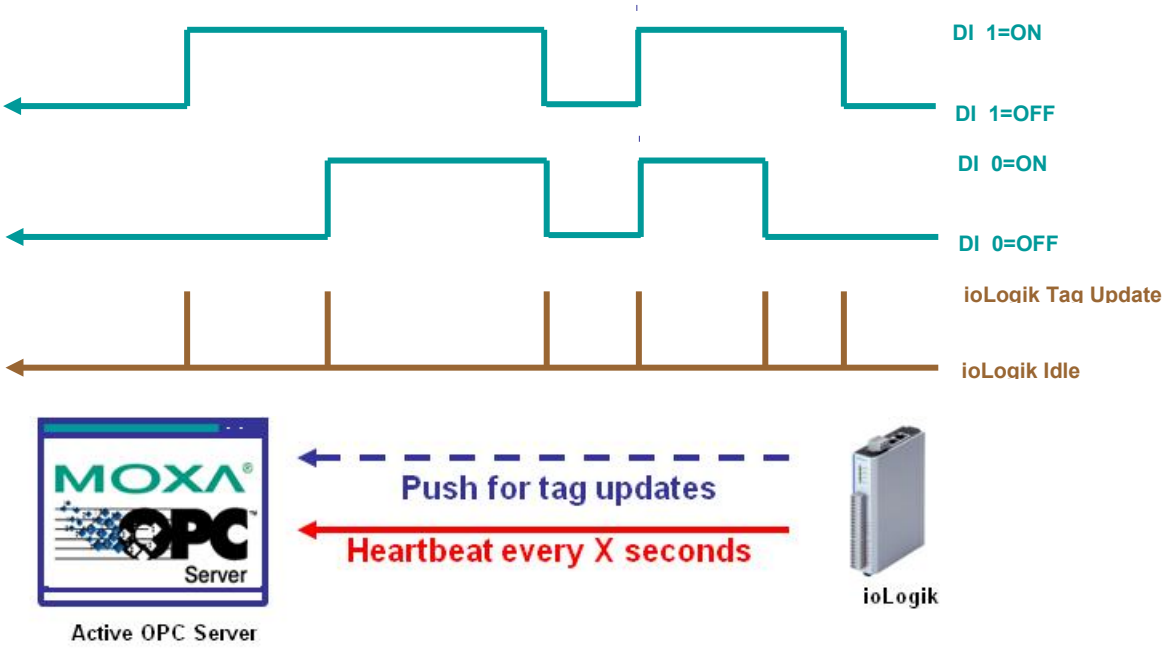
OPC also requires the connected I/O devices to use fixed IP addresses. This type of architecture is sometimes referred to as "pull" technology, because the OPC server always needs to pull data (by "polling") from the I/O devices for tag creation, IP connection, and tag status updates.

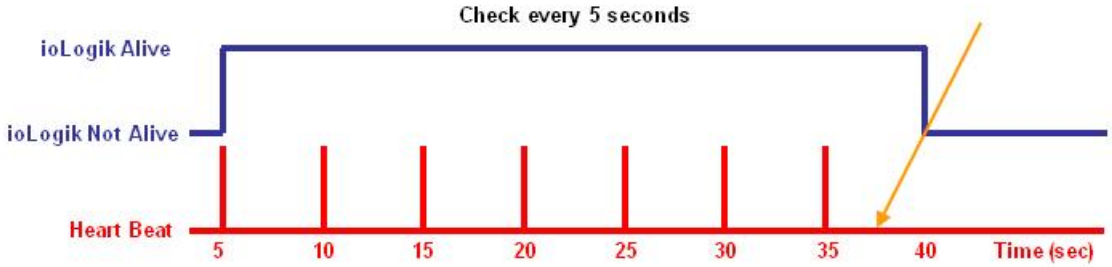


In addition, Moxa's ioLogik products now support OPC technology. An ioLogik can automatically generate tags without requesting any data or even a device's IP address. All the user needs to do is launch Active OPC Server, and the I/O channels selected by the user will be "pushed" from the ioLogik to Active OPC Server.



The "push" technology also includes the update for the tags. When the I/O status changes, the ioLogik will send updates to the Active OPC Server. Compared to polling the status (the so-called pull-based method), this feature efficiently reduces network bandwidth usage and speeds up response time with event-driven, push-based status updates. At the same time, the heartbeat function monitors the system's basic signs of life.


DI 1=ON
DI 1=OFF
DI 0=ON
DI 0=OFF
ioLogik Tag Update
ioLogik Idle
MOXA
OPC
Server
Active OPC Server
Push for tag updates
Heartbeat every X seconds
ioLogik


Check every 5 seconds
ioLogik Alive
ioLogik Not Alive
Heart Beat
5
10
15
20
25
30
35
40
Time (sec)

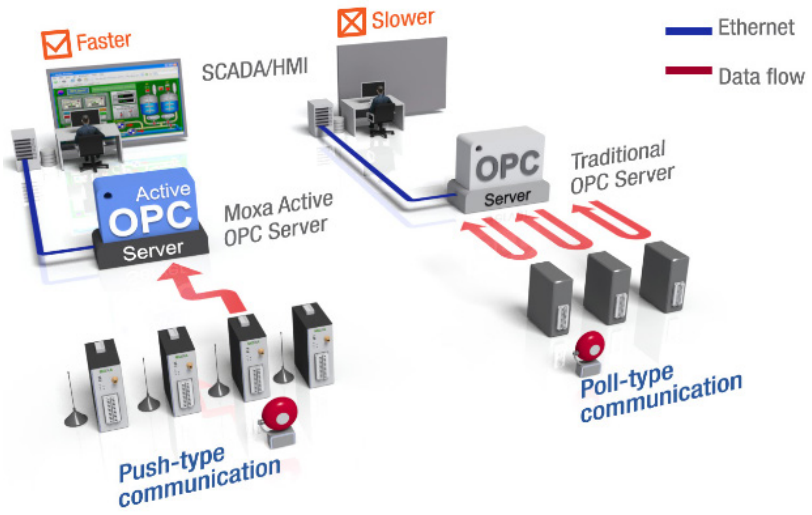
Features of Active OPC Server

One Simple Click Creates Active Tags

Moxa's RTUs, remote I/O devices, and Active OPC Servers support automatic tag generation, which eliminates the headache of specifying individual target IP addresses, I/O channels, and data formats, while even eliminating any need for editing and importing configuration files. Working from either of Moxa's ioAdmin or ioSearch™ utilities, users only need to select specific I/O channels, set the update criteria, and then click a single button for their active tags to be automatically generated and configured.

Faster, More Accurate Data Collection than Traditional "Pull Technology"

Moxa has pioneered the concept of "active type" OPC software in the automation industry. The patented Active OPC Server offers non-polling architecture alongside the standard OPC protocol, giving users the alternative of active, push-based communication from Moxa's RTUs and remote I/O devices. This adaptation of push technology means that I/O status will be updated at the Active OPC Server only when there is an I/O status change, a pre-configured interval is reached, or when a request is issued by a user. This application of push technology cuts metadata overhead, resulting in faster I/O response times and more accurate data collection than traditional pull-based architectures. With Moxa's "active technology" advantage, users can now instantly receive alarms and real time updates allowing for timely risk response.



Dynamic IP Assignments for Cellular RTUs

For most cellular solutions, each remote modem as well as the central SCADA server are assigned static public IPs when establishing bi-directional communication. Yet cellular network carriers charge higher monthly fees for static, public IPs than dynamic, private ones. Moxa's ioLogik W5300 series and patented Active OPC Server allow users to implement dynamic IP assignments for the RTUs. The ioLogik W5300 can automatically establish communications with the Active OPC Server using a fixed IP, and the Active OPC Server will receive and register the ioLogik W5300's IP address and receive or record tag updates accordingly.

3 A connection is established
ioLogik W5300 with a dynamic or private IP
2 Data acquisition
Active OPC Server
Cellular Network
Internet
SCADA Host
1 ioLogik W5300 actively registers itself on Active OPC Server

Active OPC Server Setup

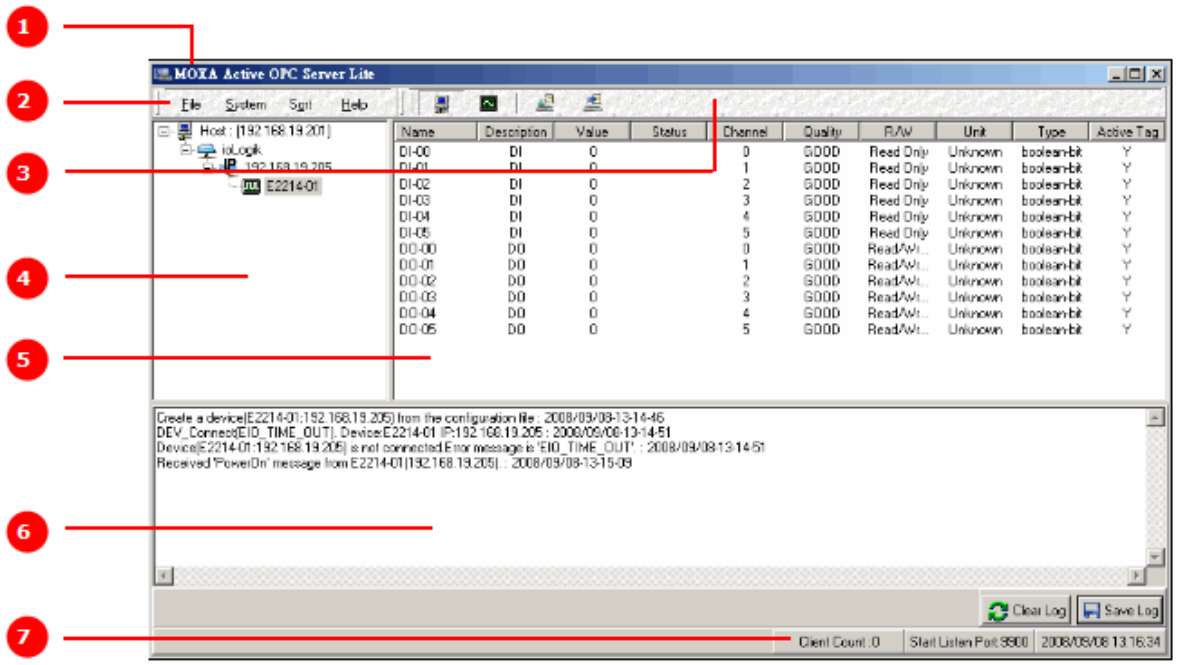
Installing Active OPC Server

Active OPC Server can be installed from the **Document and Software CD** or downloaded from the Moxa Website. The following instructions explain how to install the software from the CD:

1. **Installing from CD:** Insert the Document and Software CD into the host computer and then run **INSTALL.EXE** from the **Software\PC_Utility\SCADA_Datalogging\Active_OPC_Server\ActiveOPCSetup** directory. The installation program will guide you through the installation process for installing the Active OPC Server Lite utility.
2. **Open Active OPC Server**: After installation is finished, run Active OPC Server from the Windows Start menu: **Start → Program Files → MOXA → IO Server → ActiveOPC → ActiveOPC**

Main Screen Overview

Active OPC Server Lite's main screen displays a figure of the mapped iologik with the status of every I/O tag. Note that configuration and tags are not available until you set the ioLogik to create the tags.



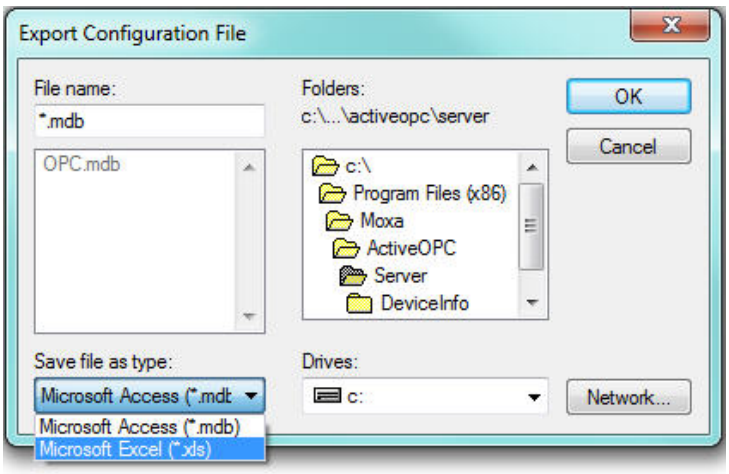
1. Title	2. Menu bar	3. Quick link	4. Navigation panel
5. Tag Window	6. Log Monitor	7. Status bar	

Menu Bar

File

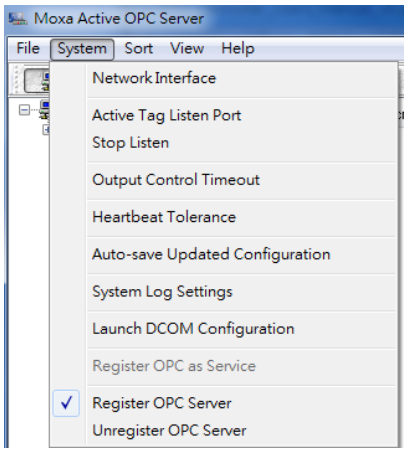
From the **File** menu, you can export the list of the ioLogik devices currently displayed in the navigation panel, and import a list into Active OPC Server.

The file will have .mdb and .xls extensions, which can be opened using Microsoft Office Access or Microsoft Excel. The server list includes the current tag information of the mapped ioLogik.

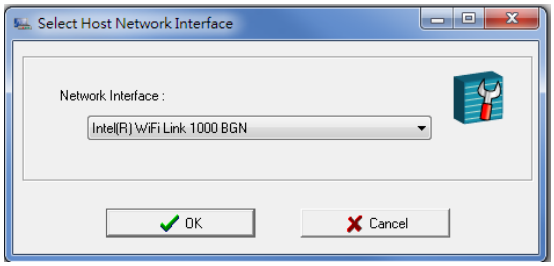


System

Several operations can be accessed from the **System** menu.



Network Interface: Select which network to use if the PC has multiple network adaptors installed.

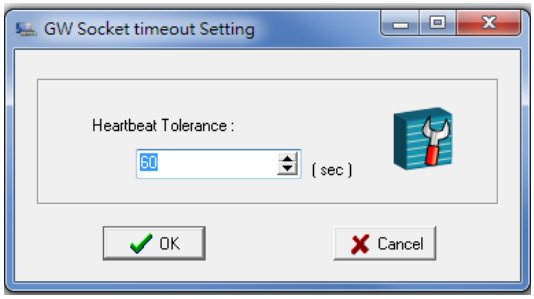


Active Tag Listen Port: Select the preferred TCP socket port for tag generation from ioAdmin.

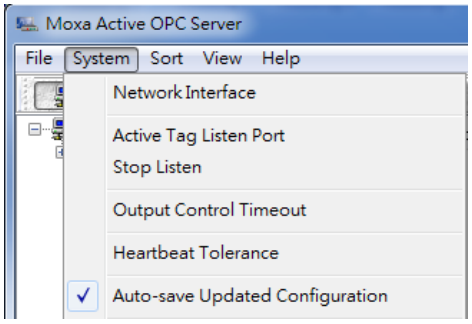
Stop Listen: Stop receiving tag generation messages and I/O status updates.

Output Control Timeout: Define the timeout interval for controlling an output channel on a remote ioLogik device.

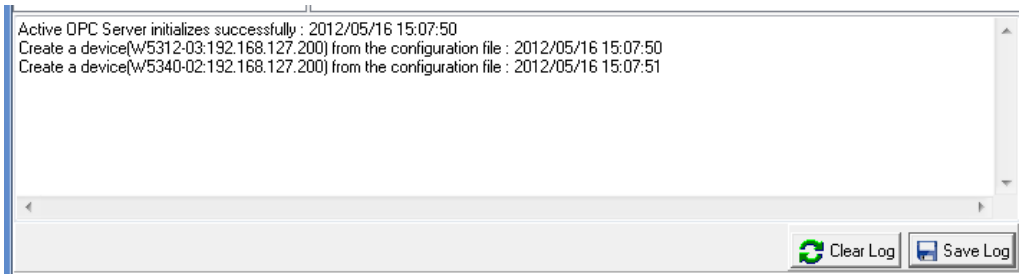
Heartbeat Tolerance: Define the timeout interval to wait for a heartbeat signal from a remote ioLogik device. (Default: 60 Seconds)



Auto-save Updated Configuration: Once you activate auto-save, Active OPC Server will automatically save the configuration when Access synchronizes.



System Log Settings: Enable or disable the Active OPC Server system log function. It will keep a Log file of all the Logging information.


Active OPC Server initializes successfully : 2012/05/16 15:07:50
Create a device(W5312-03:192.168.127.200) from the configuration file : 2012/05/16 15:07:50
Create a device(W5340-02:192.168.127.200) from the configuration file : 2012/05/16 15:07:51
Clear Log
Save Log

Launch DCOM Configuration: Launch the Windows DCOM configuration utility.

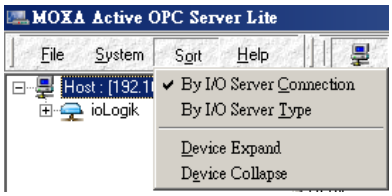
Register OPC as Service: Force Active OPC Server to run as a Windows system service.

Register OPC Server: Register the DCOM components to a Windows system. After Active OPC Server Lite is installed, it will automatically configure the DCOM.

Unregister OPC Server: Cancel the registration of DCOM components from the Windows system.

Sort

The **Sort** menu allows the server list in the navigation panel to be sorted by connection and type (model).



Quick Links

Quick links are provided for sorting the server list and importing/exporting configurations.

	Sort by connection		Import configuration
	Sort by server type		Export configuration

A

Modbus/TCP Default Address Mappings

The following topics are covered in this appendix:

- **E1210 Modbus Mapping**
- **E1211 Modbus Mapping**
- **E1212 Modbus Mapping**
- **E1213 Modbus Mapping**
- **E1214 Modbus Mapping**
- **E1240 Modbus Mapping**
- **E1241 Modbus Mapping**
- **E1242 Modbus Mapping**
- **E1260 Modbus Mapping**
- **E1262 Modbus Mapping**

NOTE The Modbus/TCP ID of the ioLogik E1200 is set to "1" by default.

E1210 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
00257	0x0100	1 bit	CH0 DI Counter Operate Status 0: Stop 1: Start(R/W)
00258	0x0101	1 bit	CH1 DI Counter Operate Status 0: Stop 1: Start(R/W)
00259	0x0102	1 bit	CH2 DI Counter Operate Status 0: Stop 1: Start(R/W)
00260	0x0103	1 bit	CH3 DI Counter Operate Status 0: Stop 1: Start(R/W)
00261	0x0104	1 bit	CH4 DI Counter Operate Status 0: Stop 1: Start(R/W)
00262	0x0105	1 bit	CH5 DI Counter Operate Status 0: Stop 1: Start(R/W)
00263	0x0106	1 bit	CH6 DI Counter Operate Status 0: Stop 1: Start(R/W)
00264	0x0107	1 bit	CH7 DI Counter Operate Status 0: Stop 1: Start(R/W)
00265	0x0108	1 bit	CH8 DI Counter Operate Status 0: Stop 1: Start(R/W)
00266	0x0109	1 bit	CH9 DI Counter Operate Status 0: Stop 1: Start(R/W)
00267	0x010A	1 bit	CH10 DI Counter Operate Status 0: Stop 1: Start(R/W)
00268	0x010B	1 bit	CH11 DI Counter Operate Status 0: Stop 1: Start(R/W)
00269	0x010C	1 bit	CH12 DI Counter Operate Status 0: Stop 1: Start(R/W)
00270	0x010D	1 bit	CH13 DI Counter Operate Status 0: Stop 1: Start(R/W)
00271	0x010E	1 bit	CH14 DI Counter Operate Status 0: Stop 1: Start(R/W)
00272	0x010F	1 bit	CH15 DI Counter Operate Status 0: Stop 1: Start(R/W)
00273	0x0110	1 bit	CH0 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00274	0x0111	1 bit	CH1 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00275	0x0112	1 bit	CH2 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00276	0x0113	1 bit	CH3 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00277	0x0114	1 bit	CH4 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00278	0x0115	1 bit	CH5 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00279	0x0116	1 bit	CH6 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)

Reference	Address	Data Type	Description
00280	0x0117	1 bit	CH7 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00281	0x0118	1 bit	CH8 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00282	0x0119	1 bit	CH9 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00283	0x011A	1 bit	CH10 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00284	0x011B	1 bit	CH11 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00285	0x011C	1 bit	CH12 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00286	0x011D	1 bit	CH13 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00287	0x011E	1 bit	CH14 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00288	0x011F	1 bit	CH15 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
10001	0x0000	1 bit	CH0 DI Value，0=OFF，1=ON (Read only)
10002	0x0001	1 bit	CH1 DI Value，0=OFF，1=ON (Read only)
10003	0x0002	1 bit	CH2 DI Value，0=OFF，1=ON (Read only)
10004	0x0003	1 bit	CH3 DI Value，0=OFF，1=ON (Read only)
10005	0x0004	1 bit	CH4 DI Value，0=OFF，1=ON (Read only)
10006	0x0005	1 bit	CH5 DI Value，0=OFF，1=ON (Read only)
10007	0x0006	1 bit	CH6 DI Value，0=OFF，1=ON (Read only)
10008	0x0007	1 bit	CH7 DI Value，0=OFF，1=ON (Read only)
10009	0x0008	1 bit	CH8 DI Value，0=OFF，1=ON (Read only)
10010	0x0009	1 bit	CH9 DI Value，0=OFF，1=ON (Read only)
10011	0x000A	1 bit	CH10 DI Value，0=OFF，1=ON (Read only)
10012	0x000B	1 bit	CH11 DI Value，0=OFF，1=ON (Read only)
10013	0x000C	1 bit	CH12 DI Value，0=OFF，1=ON (Read only)
10014	0x000D	1 bit	CH13 DI Value，0=OFF，1=ON (Read only)
10015	0x000E	1 bit	CH14 DI Value，0=OFF，1=ON (Read only)
10016	0x000F	1 bit	CH15 DI Value，0=OFF，1=ON (Read only)

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30017	0x0010	1 word	CH0 DI Counter Value Hi- Word (Read only)
30018	0x0011	1 word	CH0 DI Counter Value Lo- Word (Read only)
30019	0x0012	1 word	CH1 DI Counter Value Hi- Word (Read only)
30020	0x0013	1 word	CH1 DI Counter Value Lo- Word (Read only)
30021	0x0014	1 word	CH2 DI Counter Value Hi- Word (Read only)
30022	0x0015	1 word	CH2 DI Counter Value Lo- Word (Read only)
30023	0x0016	1 word	CH3 DI Counter Value Hi- Word (Read only)
30024	0x0017	1 word	CH3 DI Counter Value Lo- Word (Read only)
30025	0x0018	1 word	CH4 DI Counter Value Hi- Word (Read only)
30026	0x0019	1 word	CH4 DI Counter Value Lo- Word (Read only)
30027	0x001A	1 word	CH5 DI Counter Value Hi- Word (Read only)
30028	0x001B	1 word	CH5 DI Counter Value Lo- Word (Read only)
30029	0x001C	1 word	CH6 DI Counter Value Hi- Word (Read only)
30030	0x001D	1 word	CH6 DI Counter Value Lo- Word (Read only)
30031	0x001E	1 word	CH7 DI Counter Value Hi- Word (Read only)
30032	0x001F	1 word	CH7 DI Counter Value Lo- Word (Read only)
30033	0x0020	1 word	CH8 DI Counter Value Hi- Word (Read only)
30034	0x0021	1 word	CH8 DI Counter Value Lo- Word (Read only)
30035	0x0022	1 word	CH9 DI Counter Value Hi- Word (Read only)
30036	0x0023	1 word	CH9 DI Counter Value Lo- Word (Read only)
30037	0x0024	1 word	CH10 DI Counter Value Hi- Word (Read only)
30038	0x0025	1 word	CH10 DI Counter Value Lo- Word (Read only)
30039	0x0026	1 word	CH11 DI Counter Value Hi- Word (Read only)
30040	0x0027	1 word	CH11 DI Counter Value Lo- Word (Read only)
30041	0x0028	1 word	CH12 DI Counter Value Hi- Word (Read only)
30042	0x0029	1 word	CH12 DI Counter Value Lo- Word (Read only)
30043	0x002A	1 word	CH13 DI Counter Value Hi- Word (Read only)
30044	0x002B	1 word	CH13 DI Counter Value Lo- Word (Read only)
30045	0x002C	1 word	CH14 DI Counter Value Hi- Word (Read only)

Reference	Address	Data Type	Description
30046	0x002D	1 word	CH14 DI Counter Value Lo- Word (Read only)
30047	0x002E	1 word	CH15 DI Counter Value Hi- Word (Read only)
30048	0x002F	1 word	CH15 DI Counter Value Lo- Word (Read only)
30049	0x0030	1 word	DI Value (Ch0–15) Bit0 = Ch0 DI Value (0=OFF, 1=ON) …… Bit15 = Ch15 DI Value (0=OFF, 1=ON)

E1211 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
00001	0x0000	1 bit	CH0 DO Value 0: Off 1: On
00002	0x0001	1 bit	CH1 DO Value 0: Off 1: On
00003	0x0002	1 bit	CH2 DO Value 0: Off 1: On
00004	0x0003	1 bit	CH3 DO Value 0: Off 1: On
00005	0x0004	1 bit	CH4 DO Value 0: Off 1: On
00006	0x0005	1 bit	CH5 DO Value 0: Off 1: On
00007	0x0006	1 bit	CH6 DO Value 0: Off 1: On
00008	0x0007	1 bit	CH7 DO Value 0: Off 1: On
00009	0x0008	1 bit	CH8 DO Value 0: Off 1: On
00010	0x0009	1 bit	CH9 DO Value 0: Off 1: On
00011	0x000A	1 bit	CH10 DO Value 0: Off 1: On
00012	0x000B	1 bit	CH11 DO Value 0: Off 1: On
00013	0x000C	1 bit	CH12 DO Value 0: Off 1: On
00014	0x000D	1 bit	CH13 DO Value 0: Off 1: On
00015	0x000E	1 bit	CH14 DO Value 0: Off 1: On
00016	0x000F	1 bit	CH15 DO Value 0: Off 1: On
00017	0x0010	1 bit	CH0 DO Pulse Operate Status 0: Off 1: On
00018	0x0011	1 bit	CH1 DO Pulse Operate Status 0: Off 1: On
00019	0x0012	1 bit	CH2 DO Pulse Operate Status 0: Off 1: On
00020	0x0013	1 bit	CH3 DO Pulse Operate Status 0: Off 1: On
00021	0x0014	1 bit	CH4 DO Pulse Operate Status 0: Off 1: On
00022	0x0015	1 bit	CH5 DO Pulse Operate Status 0: Off 1: On
00023	0x0016	1 bit	CH6 DO Pulse Operate Status 0: Off 1: On
00024	0x0017	1 bit	CH7 DO Pulse Operate Status 0: Off 1: On
00025	0x0018	1 bit	CH8 DO Pulse Operate Status 0: Off 1: On
00026	0x0019	1 bit	CH9 DO Pulse Operate Status 0: Off 1: On
00027	0x001A	1 bit	CH10 DO Pulse Operate Status 0: Off 1: On
00028	0x001B	1 bit	CH11 DO Pulse Operate Status 0: Off 1: On
00029	0x001C	1 bit	CH12 DO Pulse Operate Status 0: Off 1: On
00030	0x001D	1 bit	CH13 DO Pulse Operate Status 0: Off 1: On
00031	0x001E	1 bit	CH14 DO Pulse Operate Status 0: Off 1: On
00032	0x001F	1 bit	CH15 DO Pulse Operate Status 0: Off 1: On
04129	0x1020	1 bit	CH0 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04130	0x1021	1 bit	CH1 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04131	0x1022	1 bit	CH2 DO Clear P2P Output Safe Status Write: 1= clear status

Reference	Address	Data Type	Description
			Read: always zero
04132	0x1023	1 bit	CH3 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04133	0x1024	1 bit	CH4 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04134	0x1025	1 bit	CH5 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04135	0x1026	1 bit	CH6 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04136	0x1027	1 bit	CH7 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04137	0x1028	1 bit	CH8 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04138	0x1029	1 bit	CH9 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04139	0x102A	1 bit	CH10 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04140	0x102B	1 bit	CH11 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04141	0x102C	1 bit	CH12 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04142	0x102D	1 bit	CH13 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04143	0x102E	1 bit	CH14 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04144	0x102F	1 bit	CH15 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
14097	0x1000	1 bit	CH0 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14098	0x1001	1 bit	CH1 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14099	0x1002	1 bit	CH2 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14100	0x1003	1 bit	CH3 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14101	0x1004	1 bit	CH4 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14102	0x1005	1 bit	CH5 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14103	0x1006	1 bit	CH6 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14104	0x1007	1 bit	CH7 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14105	0x1008	1 bit	CH8 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14106	0x1009	1 bit	CH9 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14107	0x100A	1 bit	CH10 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14108	0x100B	1 bit	CH11 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14109	0x100C	1 bit	CH12 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14110	0x100D	1 bit	CH13 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14111	0x100E	1 bit	CH14 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14112	0x100F	1 bit	CH15 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14113	0x1010	1 bit	CH0 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14114	0x1011	1 bit	CH1 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14115	0x1012	1 bit	CH2 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14116	0x1013	1 bit	CH3 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

Reference	Address	Data Type	Description
14117	0x1014	1 bit	CH4 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14118	0x1015	1 bit	CH5 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14119	0x1016	1 bit	CH6 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14120	0x1017	1 bit	CH7 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14121	0x1018	1 bit	CH8 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14122	0x1019	1 bit	CH9 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14123	0x101A	1 bit	CH10 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14124	0x101B	1 bit	CH11 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14125	0x101C	1 bit	CH12 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14126	0x101D	1 bit	CH13 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14127	0x101E	1 bit	CH14 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14128	0x101F	1 bit	CH15 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

E1212 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
DO Channel			
00001	0x0000	1 bit	CH0 DO Value 0: Off 1: On
00002	0x0001	1 bit	CH1 DO Value 0: Off 1: On
00003	0x0002	1 bit	CH2 DO Value 0: Off 1: On
00004	0x0003	1 bit	CH3 DO Value 0: Off 1: On
00005	0x0004	1 bit	CH4 DO Value 0: Off 1: On
00006	0x0005	1 bit	CH5 DO Value 0: Off 1: On
00007	0x0006	1 bit	CH6 DO Value 0: Off 1: On
00008	0x0007	1 bit	CH7 DO Value 0: Off 1: On
00017	0x0010	1 bit	CH0 DO Pulse Operate Status 0: Off 1: On
00018	0x0011	1 bit	CH1 DO Pulse Operate Status 0: Off 1: On
00019	0x0012	1 bit	CH2 DO Pulse Operate Status 0: Off 1: On
00020	0x0013	1 bit	CH3 DO Pulse Operate Status 0: Off 1: On
00021	0x0014	1 bit	CH4 DO Pulse Operate Status 0: Off 1: On
00022	0x0015	1 bit	CH5 DO Pulse Operate Status 0: Off 1: On
00023	0x0016	1 bit	CH6 DO Pulse Operate Status 0: Off 1: On
00024	0x0017	1 bit	CH7 DO Pulse Operate Status 0: Off 1: On
DI Channel			
00257	0x0100	1 bit	CH0 DI Counter Operate Status 0: Stop 1: Start(R/W)
00258	0x0101	1 bit	CH1 DI Counter Operate Status 0: Stop 1: Start(R/W)
00259	0x0102	1 bit	CH2 DI Counter Operate Status 0: Stop 1: Start(R/W)
00260	0x0103	1 bit	CH3 DI Counter Operate Status 0: Stop 1: Start(R/W)
00261	0x0104	1 bit	CH4 DI Counter Operate Status 0: Stop 1: Start(R/W)
00262	0x0105	1 bit	CH5 DI Counter Operate Status 0: Stop 1: Start(R/W)
00263	0x0106	1 bit	CH6 DI Counter Operate Status 0: Stop 1: Start(R/W)
00264	0x0107	1 bit	CH7 DI Counter Operate Status 0: Stop 1: Start(R/W)

Reference	Address	Data Type	Description
00265	0x0108	1 bit	CH8 DI Counter Operate Status 0: Stop 1: Start(R/W)
00266	0x0109	1 bit	CH9 DI Counter Operate Status 0: Stop 1: Start(R/W)
00267	0x010A	1 bit	CH10 DI Counter Operate Status 0: Stop 1: Start(R/W)
00268	0x010B	1 bit	CH11 DI Counter Operate Status 0: Stop 1: Start(R/W)
00269	0x010C	1 bit	CH12 DI Counter Operate Status 0: Stop 1: Start(R/W)
00270	0x010D	1 bit	CH13 DI Counter Operate Status 0: Stop 1: Start(R/W)
00271	0x010E	1 bit	CH14 DI Counter Operate Status 0: Stop 1: Start(R/W)
00272	0x010F	1 bit	CH15 DI Counter Operate Status 0: Stop 1: Start(R/W)
00273	0x0110	1 bit	CH0 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00274	0x0111	1 bit	CH1 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00275	0x0112	1 bit	CH2 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00276	0x0113	1 bit	CH3 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00277	0x0114	1 bit	CH4 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00278	0x0115	1 bit	CH5 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00279	0x0116	1 bit	CH6 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00280	0x0117	1 bit	CH7 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00281	0x0118	1 bit	CH8 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00282	0x0119	1 bit	CH9 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00283	0x011A	1 bit	CH10 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)

Reference	Address	Data Type	Description
00284	0x011B	1 bit	CH11 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00285	0x011C	1 bit	CH12 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00286	0x011D	1 bit	CH13 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00287	0x011E	1 bit	CH14 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00288	0x011F	1 bit	CH15 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
04129	0x1020	1word	CH0 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04130	0x1021	1word	CH1 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04131	0x1022	1word	CH2 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04132	0x1023	1word	CH3 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04133	0x1024	1word	CH4 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04134	0x1025	1word	CH5 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04135	0x1026	1word	CH6 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04136	0x1027	1word	CH7 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
10001	0x0000	1 bit	CH0 DI Value，0=OFF，1=ON (Read only)
10002	0x0001	1 bit	CH1 DI Value，0=OFF，1=ON (Read only)
10003	0x0002	1 bit	CH2 DI Value，0=OFF，1=ON (Read only)
10004	0x0003	1 bit	CH3 DI Value，0=OFF，1=ON (Read only)
10005	0x0004	1 bit	CH4 DI Value，0=OFF，1=ON (Read only)
10006	0x0005	1 bit	CH5 DI Value，0=OFF，1=ON (Read only)
10007	0x0006	1 bit	CH6 DI Value，0=OFF，1=ON (Read only)
10008	0x0007	1 bit	CH7 DI Value，0=OFF，1=ON (Read only)
10009	0x0008	1 bit	CH8 DI Value，0=OFF，1=ON (Read only)
10010	0x0009	1 bit	CH9 DI Value，0=OFF，1=ON (Read only)
10011	0x000A	1 bit	CH10 DI Value，0=OFF，1=ON (Read only)
10012	0x000B	1 bit	CH11 DI Value，0=OFF，1=ON (Read only)
10013	0x000C	1 bit	CH12 DI Value，0=OFF，1=ON (Read only)
10014	0x000D	1 bit	CH13 DI Value，0=OFF，1=ON (Read only)
10015	0x000E	1 bit	CH14 DI Value，0=OFF，1=ON (Read only)
10016	0x000F	1 bit	CH15 DI Value，0=OFF，1=ON (Read only)
14097	0x1000	1 bit	CH0 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14098	0x1001	1 bit	CH1 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14099	0x1002	1 bit	CH2 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14100	0x1003	1 bit	CH3 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14101	0x1004	1 bit	CH4 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14102	0x1005	1 bit	CH5 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14103	0x1006	1 bit	CH6 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14104	0x1007	1 bit	CH7 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14105	0x1008	1 bit	CH8 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14106	0x1009	1 bit	CH9 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14107	0x100A	1 bit	CH10 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14108	0x100B	1 bit	CH11 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14109	0x100C	1 bit	CH12 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14110	0x100D	1 bit	CH13 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14111	0x100E	1 bit	CH14 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14112	0x100F	1 bit	CH15 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14113	0x1010	1 bit	CH0 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14114	0x1011	1 bit	CH1 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14115	0x1012	1 bit	CH2 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14116	0x1013	1 bit	CH3 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14117	0x1014	1 bit	CH4 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14118	0x1015	1 bit	CH5 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14119	0x1016	1 bit	CH6 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14120	0x1017	1 bit	CH7 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14121	0x1018	1 bit	CH8 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14122	0x1019	1 bit	CH9 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14123	0x101A	1 bit	CH10 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14124	0x101B	1 bit	CH11 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14125	0x101C	1 bit	CH12 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14126	0x101D	1 bit	CH13 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14127	0x101E	1 bit	CH14 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14128	0x101F	1 bit	CH15 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30017	0x0010	1 word	CH0 DI Counter Value Hi- Word (Read only)
30018	0x0011	1 word	CH0 DI Counter Value Lo- Word (Read only)
30019	0x0012	1 word	CH1 DI Counter Value Hi- Word (Read only)
30020	0x0013	1 word	CH1 DI Counter Value Lo- Word (Read only)
30021	0x0014	1 word	CH2 DI Counter Value Hi- Word (Read only)
30022	0x0015	1 word	CH2 DI Counter Value Lo- Word (Read only)
30023	0x0016	1 word	CH3 DI Counter Value Hi- Word (Read only)
30024	0x0017	1 word	CH3 DI Counter Value Lo- Word (Read only)
30025	0x0018	1 word	CH4 DI Counter Value Hi- Word (Read only)
30026	0x0019	1 word	CH4 DI Counter Value Lo- Word (Read only)
30027	0x001A	1 word	CH5 DI Counter Value Hi- Word (Read only)
30028	0x001B	1 word	CH5 DI Counter Value Lo- Word (Read only)
30049	0x0030	1 word	DI Value (Ch0–5) Bit0 = Ch0 DI Value (0=OFF, 1=ON) …… Bit5 = Ch5 DI Value (0=OFF, 1=ON)

4xxxx Read/Write Registers (Functions 3, 6, 16)

Reference	Address	Data Type	Description
40033	0x0020	1 word	DO all Value (Ch0–5) Bit0 = Ch0 DO Value (0=OFF, 1=ON) …… Bit5 = Ch5 DO Value (0=OFF, 1=ON)

E1213 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
DO Channel			
00001	0x0000	1 bit	CH0 DO Value 0: Off 1: On
00002	0x0001	1 bit	CH1 DO Value 0: Off 1: On
00003	0x0002	1 bit	CH2 DO Value 0: Off 1: On
00004	0x0003	1 bit	CH3 DO Value 0: Off 1: On
00005	0x0004	1 bit	CH4 DO Value 0: Off 1: On
00006	0x0005	1 bit	CH5 DO Value 0: Off 1: On
00007	0x0006	1 bit	CH6 DO Value 0: Off 1: On
00008	0x0007	1 bit	CH7 DO Value 0: Off 1: On
00017	0x0010	1 bit	CH0 DO Pulse Operate Status 0: Off 1: On
00018	0x0011	1 bit	CH1 DO Pulse Operate Status 0: Off 1: On
00019	0x0012	1 bit	CH2 DO Pulse Operate Status 0: Off 1: On
00020	0x0013	1 bit	CH3 DO Pulse Operate Status 0: Off 1: On
00021	0x0014	1 bit	CH4 DO Pulse Operate Status 0: Off 1: On
00022	0x0015	1 bit	CH5 DO Pulse Operate Status 0: Off 1: On
00023	0x0016	1 bit	CH6 DO Pulse Operate Status 0: Off 1: On
00024	0x0017	1 bit	CH7 DO Pulse Operate Status 0: Off 1: On
DI Channel			

Reference	Address	Data Type	Description
00257	0x0100	1 bit	CH0 DI Counter Operate Status 0: Stop 1: Start (R/W)
00258	0x0101	1 bit	CH1 DI Counter Operate Status 0: Stop 1: Start (R/W)
00259	0x0102	1 bit	CH2 DI Counter Operate Status 0: Stop 1: Start (R/W)
00260	0x0103	1 bit	CH3 DI Counter Operate Status 0: Stop 1: Start (R/W)
00261	0x0104	1 bit	CH4 DI Counter Operate Status 0: Stop 1: Start (R/W)
00262	0x0105	1 bit	CH5 DI Counter Operate Status 0: Stop 1: Start (R/W)
00263	0x0106	1 bit	CH6 DI Counter Operate Status 0: Stop 1: Start (R/W)
00264	0x0107	1 bit	CH7 DI Counter Operate Status 0: Stop 1: Start (R/W)
00265	0x0108	1 bit	CH8 DI Counter Operate Status 0: Stop 1: Start (R/W)
00266	0x0109	1 bit	CH9 DI Counter Operate Status 0: Stop 1: Start (R/W)
00267	0x010A	1 bit	CH10 DI Counter Operate Status 0: Stop 1: Start (R/W)
00268	0x010B	1 bit	CH11 DI Counter Operate Status 0: Stop 1: Start (R/W)
00273	0x0110	1 bit	CH0 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00274	0x0111	1 bit	CH1 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00275	0x0112	1 bit	CH2 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00276	0x0113	1 bit	CH3 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00277	0x0114	1 bit	CH4 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00278	0x0115	1 bit	CH5 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00279	0x0116	1 bit	CH6 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00280	0x0117	1 bit	CH7 DI Clear Count Value

Reference	Address	Data Type	Description
			Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00281	0x0118	1 bit	CH8 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00282	0x0119	1 bit	CH9 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00283	0x011A	1 bit	CH10 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00284	0x011B	1 bit	CH11 DI Clear Count Value Read Always return: 0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
10001	0x0000	1 bit	CH0 DI Value, 0=OFF, 1=ON (Read only)
10002	0x0001	1 bit	CH1 DI Value, 0=OFF, 1=ON (Read only)
10003	0x0002	1 bit	CH2 DI Value, 0=OFF, 1=ON (Read only)
10004	0x0003	1 bit	CH3 DI Value, 0=OFF, 1=ON (Read only)
10005	0x0004	1 bit	CH4 DI Value, 0=OFF, 1=ON (Read only)
10006	0x0005	1 bit	CH5 DI Value, 0=OFF, 1=ON (Read only)
10007	0x0006	1 bit	CH6 DI Value, 0=OFF, 1=ON (Read only)
10008	0x0007	1 bit	CH7 DI Value, 0=OFF, 1=ON (Read only)
10009	0x0008	1 bit	CH8 DI Value, 0=OFF, 1=ON (Read only)
10010	0x0009	1 bit	CH9 DI Value, 0=OFF, 1=ON (Read only)
10011	0x0010	1 bit	CH10 DI Value, 0=OFF, 1=ON (Read only)
10012	0x0011	1 bit	CH11 DI Value, 0=OFF, 1=ON (Read only)
14097	0x1000	1 bit	CH0 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14098	0x1001	1 bit	CH1 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14099	0x1002	1 bit	CH2 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14100	0x1003	1 bit	CH3 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14101	0x1004	1 bit	CH4 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14102	0x1005	1 bit	CH5 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14103	0x1006	1 bit	CH6 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14104	0x1007	1 bit	CH7 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14113	0x1010	1 bit	CH0 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14114	0x1011	1 bit	CH1 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14115	0x1012	1 bit	CH2 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14116	0x1013	1 bit	CH3 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14117	0x1014	1 bit	CH4 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14118	0x1015	1 bit	CH5 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14119	0x1016	1 bit	CH6 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14120	0x1017	1 bit	CH7 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

Reference	Address	Data Type	Description
14129	0x1020	1 word	CH0 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14130	0x1021	1 word	CH1 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14131	0x1022	1 word	CH2 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14132	0x1023	1 word	CH3 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14133	0x1024	1 word	CH4 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14134	0x1025	1 word	CH5 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14135	0x1026	1 word	CH6 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
14136	0x1027	1 word	CH7 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30017	0x0010	1 Word	CH0 DI Counter Value Hi- Word (Read only)
30018	0x0011	1 Word	CH0 DI Counter Value Lo- Word (Read only)
30019	0x0012	1 Word	CH1 DI Counter Value Hi- Word (Read only)
30020	0x0013	1 Word	CH1 DI Counter Value Lo- Word (Read only)
30021	0x0014	1 Word	CH2 DI Counter Value Hi- Word (Read only)
30022	0x0015	1 Word	CH2 DI Counter Value Lo- Word (Read only)
30023	0x0016	1 Word	CH3 DI Counter Value Hi- Word (Read only)
30024	0x0017	1 Word	CH3 DI Counter Value Lo- Word (Read only)
30025	0x0018	1 Word	CH4 DI Counter Value Hi- Word (Read only)
30026	0x0019	1 Word	CH4 DI Counter Value Lo- Word (Read only)
30027	0x001A	1 Word	CH5 DI Counter Value Hi- Word (Read only)
30028	0x001B	1 Word	CH5 DI Counter Value Lo- Word (Read only)
30049	0x0030	1 Word	DI Value (Ch0–5) Bit0 = Ch0 DI Value (0=OFF, 1=ON) …… Bit5 = Ch5 DI Value (0=OFF, 1=ON)

4xxxx Read/Write Registers (Functions 3, 6, 16)

Reference	Address	Data Type	Description
30033	0x0020	1 Word	DO all Value (Ch0–5) Bit0 = Ch0 DO Value (0=OFF, 1=ON) …… Bit5 = Ch5 DO Value (0=OFF, 1=ON)

E1214 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
DO Channel			
00001	0x0000	1 bit	CH0 DO (Relay) Value 0: Off 1: On
00002	0x0001	1 bit	CH1 DO (Relay) Value 0: Off 1: On
00003	0x0002	1 bit	CH2 DO (Relay) Value 0: Off 1: On
00004	0x0003	1 bit	CH3 DO (Relay) Value 0: Off 1: On
00005	0x0004	1 bit	CH4 DO (Relay) Value 0: Off 1: On
00006	0x0005	1 bit	CH5 DO (Relay) Value 0: Off 1: On
00017	0x0010	1 bit	CH0 DO (Relay) Pulse Operate Status 0: Off 1: On
00018	0x0011	1 bit	CH1 DO (Relay) Pulse Operate Status 0: Off 1: On
00019	0x0012	1 bit	CH2 DO (Relay) Pulse Operate Status 0: Off 1: On
00020	0x0013	1 bit	CH3 DO (Relay) Pulse Operate Status 0: Off 1: On
00021	0x0014	1 bit	CH4 DO (Relay) Pulse Operate Status 0: Off 1: On
00022	0x0015	1 bit	CH5 DO (Relay) Pulse Operate Status 0: Off 1: On
04129	0x1020	1 bit	CH0 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04130	0x1021	1 bit	CH1 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04131	0x1022	1 bit	CH2 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04132	0x1023	1 bit	CH3 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04133	0x1024	1 bit	CH4 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04134	0x1025	1 bit	CH5 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
DI Channel			
00257	0x0100	1 bit	CH0 DI Counter Operate Status 0: Stop 1: Start(R/W)
00258	0x0101	1 bit	CH1 DI Counter Operate Status 0: Stop 1: Start(R/W)
00259	0x0102	1 bit	CH2 DI Counter Operate Status 0: Stop 1: Start(R/W)
00260	0x0103	1 bit	CH3 DI Counter Operate Status 0: Stop 1: Start(R/W)
00261	0x0104	1 bit	CH4 DI Counter Operate Status 0: Stop 1: Start(R/W)
00262	0x0105	1 bit	CH5 DI Counter Operate Status 0: Stop 1: Start(R/W)
00273	0x0110	1 bit	CH0 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00274	0x0111	1 bit	CH1 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00275	0x0112	1 bit	CH2 DI Clear Count Value

Reference	Address	Data Type	Description
			Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00276	0x0113	1 bit	CH3 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00277	0x0114	1 bit	CH4 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00278	0x0115	1 bit	CH5 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
10001	0x0000	1 bit	CH0 DI Value, 0=OFF, 1=ON (Read only)
10002	0x0001	1 bit	CH1 DI Value, 0=OFF, 1=ON (Read only)
10003	0x0002	1 bit	CH2 DI Value, 0=OFF, 1=ON (Read only)
10004	0x0003	1 bit	CH3 DI Value, 0=OFF, 1=ON (Read only)
10005	0x0004	1 bit	CH4 DI Value, 0=OFF, 1=ON (Read only)
10006	0x0005	1 bit	CH5 DI Value, 0=OFF, 1=ON (Read only)
14097	0x1000	1 bit	CH0 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14098	0x1001	1 bit	CH1 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14099	0x1002	1 bit	CH2 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14100	0x1003	1 bit	CH3 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14101	0x1004	1 bit	CH4 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14102	0x1005	1 bit	CH5 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14113	0x1010	1 bit	CH0 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14114	0x1011	1 bit	CH1 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14115	0x1012	1 bit	CH2 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14116	0x1013	1 bit	CH3 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14117	0x1014	1 bit	CH4 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14118	0x1015	1 bit	CH5 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30017	0x0010	1 word	CH0 DI Counter Value Hi- Word (Read only)
30018	0x0011	1 word	CH0 DI Counter Value Lo- Word (Read only)
30019	0x0012	1 word	CH1 DI Counter Value Hi- Word (Read only)
30020	0x0013	1 word	CH1 DI Counter Value Lo- Word (Read only)
30021	0x0014	1 word	CH2 DI Counter Value Hi- Word (Read only)
30022	0x0015	1 word	CH2 DI Counter Value Lo- Word (Read only)
30023	0x0016	1 word	CH3 DI Counter Value Hi- Word (Read only)
30024	0x0017	1 word	CH3 DI Counter Value Lo- Word (Read only)
30025	0x0018	1 word	CH4 DI Counter Value Hi- Word (Read only)
30026	0x0019	1 word	CH4 DI Counter Value Lo- Word (Read only)
30027	0x001A	1 word	CH5 DI Counter Value Hi- Word (Read only)
30028	0x001B	1 word	CH5 DI Counter Value Lo- Word (Read only)
30049	0x0030	1 word	DI Value (Ch0–5) Bit0 = Ch0 DI Value (0=OFF, 1=ON) …… Bit5 = Ch5 DI Value (0=OFF, 1=ON)

4xxxx Read/Write Registers (Functions 3, 6, 16)

Reference	Address	Data Type	Description
40033	0x0020	1 word	DO (Relay) all Value (Ch0–5) Bit0 = Ch0 DO Value (0=OFF, 1=ON) …… Bit5 = Ch5 DO Value (0=OFF, 1=ON)

E1240 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
04145	0x1030	1 bit	Clear Watchdog Alarm

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30001	0x0000	1 word	CH0 Read AI Value
30002	0x0001	1 word	CH1 Read AI Value
30003	0x0002	1 word	CH2 Read AI Value
30004	0x0003	1 word	CH3 Read AI Value
30005	0x0004	1 word	CH4 Read AI Value
30006	0x0005	1 word	CH5 Read AI Value
30007	0x0006	1 word	CH6 Read AI Value
30008	0x0007	1 word	CH7 Read AI Value
30009	0x0008	1 word	CH0 Read AI Scaling Value Hi (float)
30010	0x0009	1 word	CH0 Read AI Scaling Value Low (float)
30011	0x000A	1 word	CH1 Read AI Scaling Value Hi (float)
30012	0x000B	1 word	CH1 Read AI Scaling Value Low (float)

Reference	Address	Data Type	Description
30013	0x000C	1 word	CH2 Read AI Scaling Value Hi (float)
30014	0x000D	1 word	CH2 Read AI Scaling Value Low (float)
30015	0x000E	1 word	CH3 Read AI Scaling Value Hi (float)
30016	0x000F	1 word	CH3 Read AI Scaling Value Low (float)
30017	0x0010	1 word	CH4 Read AI Scaling Value Hi (float)
30018	0x0011	1 word	CH4 Read AI Scaling Value Low (float)
30019	0x0012	1 word	CH5 Read AI Scaling Value Hi (float)
30020	0x0013	1 word	CH5 Read AI Scaling Value Low (float)
30021	0x0014	1 word	CH6 Read AI Scaling Value Hi (float)
30022	0x0015	1 word	CH6 Read AI Scaling Value Low (float)
30023	0x0016	1 word	CH7 Read AI Scaling Value Hi (float)
30024	0x0017	1 word	CH7 Read AI Scaling Value Low (float)
30061	0x003C	1 word	Read AI 0 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30062	0x003D	1 word	Read AI 1 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30063	0x003E	1 word	Read AI 2 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30064	0x003F	1 word	Read AI 3 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30065	0x0040	1 word	Read AI 4 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30066	0x0041	1 word	Read AI 5 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30067	0x0042	1 word	Read AI 6 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30068	0x0043	1 word	Read AI 7 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
40025	0x0018	1 word	CH AI 0 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40026	0x0019	1 word	CH AI 1 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40027	0x001A	1 word	CH AI 2 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40028	0x001B	1 word	CH AI 3 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40029	0x001C	1 word	CH AI 4 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40030	0x001D	1 word	CH AI 5 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40031	0x001E	1 word	CH AI 6 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40032	0x001F	1 word	CH AI 7 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40041	0x0028	2 words	CH AI 0 BO Value (floating point)
40043	0x002A	2 words	CH AI 1 BO Value (floating point)
40045	0x002C	2 words	CH AI 2 BO Value (floating point)
40047	0x002E	2 words	CH AI 3 BO Value (floating point)
40049	0x0030	2 words	CH AI 4 BO Value (floating point)
40051	0x0032	2 words	CH AI 5 BO Value (floating point)
40053	0x0034	2 words	CH AI 6 BO Value (floating point)
40055	0x0036	2 words	CH AI 7 BO Value (floating point)

E1241 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
04097	0x1000	1 bit	CH0 AO P2P Connect Status 0=OFFLINE, 1=ONLINE
04098	0x1001	1 bit	CH1 AO P2P Connect Status 0=OFFLINE, 1=ONLINE
04099	0x1002	1 bit	CH2 AO P2P Connect Status 0=OFFLINE, 1=ONLINE
04100	0x1003	1 bit	CH3 AO P2P Connect Status 0=OFFLINE, 1=ONLINE
04113	0x1010	1 bit	CH0 AO P2P Output Safe Status 0=Normal, 1=Safe Mode
04114	0x1011	1 bit	CH1 AO P2P Output Safe Status 0=Normal, 1=Safe Mode
04115	0x1012	1 bit	CH2 AO P2P Output Safe Status 0=Normal, 1=Safe Mode
04116	0x1013	1 bit	CH3 AO P2P Output Safe Status 0=Normal, 1=Safe Mode
04129	0x1020	1 bit	CH0 AO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04130	0x1021	1 bit	CH1 AO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04131	0x1022	1 bit	CH2 AO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04132	0x1023	1 bit	CH3 AO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04145	0x1030	1 bit	Clear Watchdog Alarm

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
30001	0x0000	2 words	CH0 Read AO Scaling Value (float)
30002	0x0001	2 words	CH1 Read AO Scaling Value (float)
30003	0x0002	2 words	CH2 Read AO Scaling Value (float)
30004	0x0003	2 words	CH3 Read AO Scaling Value (float)

4xxxx Read/Write Registers (Functions 3, 6, 16)

Reference	Address	Data Type	Description
41025	0x0400	1 word	CH0 AO RAW Value
41026	0x0401	1 word	CH1 AO RAW Value
41027	0x0402	1 word	CH2 AO RAW Value
41028	0x0403	1 word	CH3 AO RAW Value

E1242 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
DO Channel			
00001	0x0000	1 bit	CH0 DO Value 0: Off 1: On
00002	0x0001	1 bit	CH1 DO Value 0: Off 1: On
00003	0x0002	1 bit	CH2 DO Value 0: Off 1: On
00004	0x0003	1 bit	CH3 DO Value 0: Off 1: On
00017	0x0010	1 bit	CH0 DO Pulse Operate Status 0: Off 1: On
00018	0x0011	1 bit	CH1 DO Pulse Operate Status 0: Off 1: On
00019	0x0012	1 bit	CH2 DO Pulse Operate Status 0: Off 1: On
00020	0x0013	1 bit	CH3 DO Pulse Operate Status 0: Off 1: On
DI Channel			
00257	0x0100	1 bit	CH0 DI Counter Operate Status 0: Stop 1: Start(R/W)
00258	0x0101	1 bit	CH1 DI Counter Operate Status 0: Stop 1: Start(R/W)
00259	0x0102	1 bit	CH2 DI Counter Operate Status 0: Stop 1: Start(R/W)
00260	0x0103	1 bit	CH3 DI Counter Operate Status 0: Stop 1: Start(R/W)
00261	0x0104	1 bit	CH4 DI Counter Operate Status 0: Stop 1: Start(R/W)
00262	0x0105	1 bit	CH5 DI Counter Operate Status 0: Stop 1: Start(R/W)
00263	0x0106	1 bit	CH6 DI Counter Operate Status 0: Stop 1: Start(R/W)
00264	0x0107	1 bit	CH7 DI Counter Operate Status 0: Stop 1: Start(R/W)
00273	0x0110	1 bit	CH0 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00274	0x0111	1 bit	CH1 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00275	0x0112	1 bit	CH2 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)

Reference	Address	Data Type	Description
00276	0x0113	1 bit	CH3 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00277	0x0114	1 bit	CH4 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00278	0x0115	1 bit	CH5 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00279	0x0116	1 bit	CH6 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
00280	0x0117	1 bit	CH7 DI Clear Count Value Read Always return:0 Write: 1 : Clear counter value 0 : Return illegal data value(0x03)
04129	0x1020	1 bit	CH0 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04130	0x1021	1 bit	CH1 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04131	0x1022	1 bit	CH2 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04132	0x1023	1 bit	CH3 DO Clear P2P Output Safe Status Write: 1= clear status Read: always zero
04145	0x1030	1 bit	Clear Watchdog Alarm

1xxxx Read Only Coils (Function 2)

Reference	Address	Data Type	Description
DI Channel			
10001	0x0000	1 bit	CH0 DI Value, 0=OFF, 1=ON (Read only)
10002	0x0001	1 bit	CH1 DI Value, 0=OFF, 1=ON (Read only)
10003	0x0002	1 bit	CH2 DI Value, 0=OFF, 1=ON (Read only)
10004	0x0003	1 bit	CH3 DI Value, 0=OFF, 1=ON (Read only)
10005	0x0004	1 bit	CH4 DI Value, 0=OFF, 1=ON (Read only)
10006	0x0005	1 bit	CH5 DI Value, 0=OFF, 1=ON (Read only)
10007	0x0006	1 bit	CH6 DI Value, 0=OFF, 1=ON (Read only)
10008	0x0007	1 bit	CH7 DI Value, 0=OFF, 1=ON (Read only)
14097	0x1000	1 bit	CH0 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14098	0x1001	1 bit	CH1 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14099	0x1002	1 bit	CH2 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14100	0x1003	1 bit	CH3 DO P2P Connect Status 0=OFFLINE, 1=ONLINE
14113	0x1010	1 bit	CH0 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14114	0x1011	1 bit	CH1 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

Reference	Address	Data Type	Description
14115	0x1012	1 bit	CH2 DO P2P Output Safe Status 0=Normal, 1=Safe Mode
14116	0x1013	1 bit	CH3 DO P2P Output Safe Status 0=Normal, 1=Safe Mode

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
DI Channel			
30017	0x0010	1 word	CH0 DI Counter Value Hi- Word (Read only)
30018	0x0011	1 word	CH0 DI Counter Value Lo- Word (Read only)
30019	0x0012	1 word	CH1 DI Counter Value Hi- Word (Read only)
30020	0x0013	1 word	CH1 DI Counter Value Lo- Word (Read only)
30021	0x0014	1 word	CH2 DI Counter Value Hi- Word (Read only)
30022	0x0015	1 word	CH2 DI Counter Value Lo- Word (Read only)
30023	0x0016	1 word	CH3 DI Counter Value Hi- Word (Read only)
30024	0x0017	1 word	CH3 DI Counter Value Lo- Word (Read only)
30025	0x0018	1 word	CH4 DI Counter Value Hi- Word (Read only)
30026	0x0019	1 word	CH4 DI Counter Value Lo- Word (Read only)
30027	0x001A	1 word	CH5 DI Counter Value Hi- Word (Read only)
30028	0x001B	1 word	CH5 DI Counter Value Lo- Word (Read only)
30029	0x001C	1 word	CH6 DI Counter Value Hi- Word (Read only)
30030	0x001D	1 word	CH6 DI Counter Value Lo- Word (Read only)
30031	0x001E	1 word	CH7 DI Counter Value Hi- Word (Read only)
30032	0x001F	1 word	CH7 DI Counter Value Lo- Word (Read only)
30049	0x0030	1 word	DI Value (Ch0–7) Bit0 = Ch0 DI Value (0=OFF, 1=ON) Bit7 = Ch7 DI Value (0=OFF, 1=ON) …… Bit8 to 15 = reserved
30513	0x0200	1 word	CH0 Read AI RAW Value
30514	0x0201	1 word	CH1 Read AI RAW Value
30515	0x0202	1 word	CH2 Read AI RAW Value
30516	0x0203	1 word	CH3 Read AI RAW Value
30521	0x208	1 word	CH0 Read AI Scaling Value Hi (float)
30522	0x209	1 word	CH0 Read AI Scaling Value Low (float)
30523	0x20A	1 word	CH1 Read AI Scaling Value Hi (float)
30524	0x20B	1 word	CH1 Read AI Scaling Value Low (float)
30525	0x20C	1 word	CH2 Read AI Scaling Value Hi (float)
30526	0x20D	1 word	CH2 Read AI Scaling Value Low (float)
30527	0x20E	1 word	CH3 Read AI Scaling Value Hi (float)
30528	0x20F	1 word	CH3 Read AI Scaling Value Low (float)
30577	0x0240	1 word	Read AI 0 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30578	0x0241	1 word	Read AI 1 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range
30579	0x0242	1 word	Read AI 2 Current Mode Status 0: Normal 1: Burn Out

Reference	Address	Data Type	Description
			2: Over Range 3. Under Range
30580	0x0243	1 word	Read AI 3 Current Mode Status 0: Normal 1: Burn Out 2: Over Range 3. Under Range

4xxxx Read/Write Registers (Functions 3, 6, 16)

Reference	Address	Data Type	Description
40033	0x0020	1 word	DO all Value (Ch0–3) Bit0 = Ch0 DO Value (0=OFF, 1=ON) Bit3 = Ch3 DO Value (0=OFF, 1=ON) Bit4 to 15 = reserved
40545	0x0220	1 word	CH0 AI 0 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40546	0x0221	1 word	CH0 AI 1 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40547	0x0222	1 word	CH0 AI 2 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40548	0x0223	1 word	CH0 AI 3 Mode: 1:4-20mA, 2:0-20mA, 4:BO
40561	0x0230	2 words	CH AI 0 BO Value (floating point)
40563	0x0232	2 words	CH AI 1 BO Value (floating point)
40565	0x0234	2 words	CH AI 2 BO Value (floating point)
40567	0x0236	2 words	CH AI 3 BO Value (floating point)

E1260 Modbus Mapping

0xxxx Read/Write Coils (Functions 1, 5, 15)

Reference	Address	Data Type	Description
04145	0x1030	1 bit	Clear Watchdog Alarm

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
31537	0x0600	1 word	CH0 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)
31538	0x0601	1 word	CH1 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)
31539	0x0602	1 word	CH2 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)
31540	0x0603	1 word	CH3 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)
31541	0x0604	1 word	CH4 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)
31542	0x0605	1 word	CH5 Read RTD Value Range 0–65535, Unit:0.1 (Ohm, Celsius, Fahrenheit)

E1262 Modbus Mapping

3xxxx Read Only Registers (Function 4)

Reference	Address	Data Type	Description
32049	0x0800	1 word	CH0 TC Minimum Value Hi Word Unit:0.1 (Celsius, Fahrenheit) 0.0001(mV)
32050	0x0801	1 word	CH0 TC Minimum Value Lo Word Hi+Lo Range: 0–4294967295 Unit:0.1 (Celsius, Fahrenheit) 0.0001(mV)
32051	0x0802	1 word	CH1 TC Minimum Value Hi Word
32052	0x0803	1 word	CH1 TC Minimum Value Lo Word
32053	0x0804	1 word	CH2 TC Minimum Value Hi Word
32054	0x0805	1 word	CH2 TC Minimum Value Lo Word
32055	0x0806	1 word	CH3 TC Minimum Value Hi Word
32056	0x0807	1 word	CH3 TC Minimum Value Lo Word
32057	0x0808	1 word	CH4 TC Minimum Value Hi Word
32058	0x0809	1 word	CH4 TC Minimum Value Lo Word
32059	0x080A	1 word	CH5 TC Minimum Value Hi Word
32060	0x080B	1 word	CH5 TC Minimum Value Lo Word
32061	0x080C	1 word	CH6 TC Minimum Value Hi Word
32062	0x080D	1 word	CH6 TC Minimum Value Lo Word
32063	0x080E	1 word	CH7 TC Minimum Value Hi Word
32064	0x080F	1 word	CH7 TC Minimum Value Lo Word
32065	0x0810	1 word	CH8 TC Minimum Value Hi Word
32066	0x0811	1 word	CH8 TC Minimum Value Lo Word

B

Network Port Numbers

ioLogik E1200 Network Port Usage

Port	Type	Usage
80	TCP	Web console service
502	TCP	Modbus/TCP communication
68	UDP	BOOTP/DHCP
4800	UDP	Auto search
69	UDP	Export/import configuration file
9900	TCP	Active OPC Server
9950	TCP	Active OPC Server
9020 (default)	TCP	Peer-to-peer

C

Factory Default Settings

ioLogik E1200 series products are configured with the following factory default settings:

Default IP address	192.168.127.254
Default Netmask	255.255.255.0
Default Gateway	0.0.0.0
Communication watchdog	Disable
Modbus/TCP Alive Check	On
Modbus/TCP Timeout Interval	60 sec
DI Mode	DI
Filter time	100 ms
Trigger for counter	Lo to Hi
Counter status	Stop
DO Mode	DO
DO Safe Status	Disable
Power on status	Disable
Low width for pulse	1 ms (1.5 s for relay)
Hi width for pulse	1 ms (1.5 s for relay)
Output pulses	0 (continuous)
DIO Mode	DO
AI Mode	Voltage
Scaling and Slop-Intercept	Disable
Password	N/A
Server Name	N/A
Server Location	N/A
AO Mode	Voltage
Scaling	Disable

D

Pinouts

Pin Assignment of Terminal Blocks

ioLogik E1210
(Top to Bottom)

1	COM 0
2	DI0
3	DI1
4	DI2
5	DI3
6	GND
7	DI4
8	DI5
9	DI6
10	DI7
11	COM 1
12	DI8
13	DI9
14	DI10
15	DI11
16	GND
17	DI12
18	DI13
19	DI14
20	DI15

ioLogik E1211
(Top to Bottom)

1	
2	DO0
3	DO1
4	DO2
5	DO3
6	GND
7	DO4
8	DO5
9	DO6
10	DO7
11	
12	DO8
13	DO9
14	DO10
15	DO11
16	GND
17	DO12
18	DO13
19	DO14
20	DO15

ioLogik E1212
(Top to Bottom)

1	COM 0
2	DI0
3	DI1
4	DI2
5	DI3
6	GND
7	DI4
8	DI5
9	DI6
10	DI7
11	COM1
12	DIO0
13	DIO1
14	DIO2
15	DIO3
16	GND
17	DIO4
18	DIO5
19	DIO6
20	DIO7

ioLogik E1213
(Top to Bottom)

1	COM 0
2	DI0
3	DI1
4	DI2
5	DI3
6	DI4
7	DI5
8	DI6
9	DI7
10	GND
11	DO0
12	DO1
13	DO2
14	DO3
15	DIO0
16	DIO1
17	DIO2
18	DIO3
19	GND
20	EXT

ioLogik E1214
(Top to Bottom)

1	COM 0
2	DI0
3	DI1
4	DI2
5	DI3
6	DI4
7	DI5
8	GND
9	R0_NO
10	R0_C
11	R1_NO
12	R1_C
13	R2_NO
14	R2_C
15	R3_NO
16	R3_C
17	R4_NO
18	R4_C
19	R5_NO
20	R5_C

ioLogik E1240
(Top to Bottom)

1	AI0+
2	AI0-
3	AI1+
4	AI1-
5	AI2+
6	AI2-
7	AI3+
8	AI3-
9	AI4+
10	AI4-
11	AI5+
12	AI5-
13	AI6+
14	AI6-
15	AI7+
16	AI7-
17	
18	
19	
20	

ioLogik E1241
(Top to Bottom)

1	VO0+
2	VO0-
3	IO0+
4	IO0-
5	VO1+
6	VO1-
7	IO1+
8	IO1-
9	VO2+
10	VO2-
11	IO2+
12	IO2-
13	VO3+
14	VO3-
15	IO3+
16	IO3-
17	
18	
19	EX_V
20	EX_C

ioLogik E1242
(Top to Bottom)

1	AI0+
2	AI0-
3	AI1+
4	AI1-
5	AI2+
6	AI2-
7	AI3+
8	AI3-
9	COM0
10	DI0
11	DI1
12	DI2
13	DI3
14	GND
15	COM1
16	DIO0
17	DIO1
18	DIO2
19	DIO3
20	GND

ioLogik E1260
(Top to Bottom)

1	EX0
2	IN0+
3	IN0-
4	EX1
5	IN1+
6	IN1-
7	EX2
8	IN2+
9	IN2-
10	EX3
11	IN3+
12	IN3-
13	EX4
14	IN4+
15	IN4-
16	EX5
17	IN5+
18	IN5-
19	
20	

ioLogik E1262
(Top to Bottom)

1	TC0+
2	TC0-
3	TC1+
4	TC1-
5	TC2+
6	TC2-
7	TC3+
8	TC3-
9	TC4+
10	TC4-
11	TC5+
12	TC5-
13	TC6+
14	TC6-
15	TC7+
16	TC7-
17	
18	
19	
20	

NOTE EX_V: External Voltage
EX_C: External Com

E

FCC Interference Statement

Federal Communication Commission Warning!

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

F

European Community (CE)

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.